MIN XX NO. 38



th charts in Ad. page 145

Executive Electronic Data Interchange: Users realize the benefits/39

in Dopth Does SQL live up to its name?/71

TOP OF THE NEWS

Tandem Computers obtains first Cobol 85 high-level certification. Page 4.

. Honeywell cuts 4,000 jobs but den sell-off speculation. Page 8. . ia's next chip tries to head off Intel. Page 10.

MAP enthu ism. Page 12.

DPMA selects Travelers insur-ophy for annual honor. Page 91.

term. Page 144.

At the National Retail Merchants Asso-olation conference tomorrow, Tandem Computers, inc. will associate a point-of-sial network controller. Store Link com-bines Tandem's processors with software modules from processors with software. The conference of the controller of the modules from the controller of the conference of the controller of the Calif., has cut the time involved in formatting sales transaction data it receives electronically from its store cash regis-ters by a factor of six, according to Peter Hart, the company's MIS vice-president.

The software bunding soft that Data General recently settled with Fairchild Semiconductor (CW, Sept. 15) has See MEWS page 8

Coming this week:

EXTRA!

The world of Digital Equipment Corp.
—from R&D to new products, from user strategies to hind-party software — will be featured in &true magazine, due out Sept. 24. The issue will include reports on Microvax, Vaxmate and next-generation VAXs, plus provocative interviews with executives past and present.

IBM unveils new net plan

Multivendor devices, PBXs and Token-Ring tie to SNA

By Stanley Glosen
RYE BROOK, N.Y. — Attempting to
steal s march in the computer industry's
connectivity battle, IBM last week announced products designed to allow large
users to centrally manage corporatewide

networks.

Although many of the products will not be available until late 1867, 18M said it will provide the ability to the non-18M computer equipment and private branch exchanges as well as its own Token-Ring network into a Systems Network Architecture

network management system.

Managers will be able to monitor de-partmental networks using a Personal Computer version of IBM's mainframebased Netview program, announced in

May. Operating on IBM Personal Computer KTs or ATs, Netview/PC communicates with Netview on IBM 370 mainframes to provide workstation control and monitor-

ing of extensive networks. ing of extensive networks.

"We see a very significant customer requirement to manage multivendor networks," said Bill Warner, director of business systems management at IBM's communications programming lab in Raleigh, N.C. "We're trying to open up our network management system and provide applications and a way for other manufacture." rers to bring their equit

system."
Warner would not specify the number of nodes that might be supported by one Netview/PC, except to say that a single PC can monitor up to 10 Rolm Carp. Computerized Branch Exchanges and Rolm CBX II 9000 nodes.

As a first step in implementing its cor See IBM page 4

Big users get Apple loaners

By Pouge's West
CUPERTINO, Calif. — Apple Computer,
Inc. last west confirmed it will issuech yet
another; assealt of the harger operation
to take a number of leading Apple products on extended loan.
The program, to begin next month, includes the loan of the Macintonh Plus, the
Apple Laserwitze printer and such popular third-party Macintonh products as 86—
council Copy be Eurol Integrates software

package.

The loan program will be handled by Apple's 18 regional business development managers, who will contact and invite For-

Micro drive into departmental DP keys ADR strategy

By Charles Babcock NASHVILLE — Applied Data Research,

Inc., reflecting the research and develop-ment muscle of its new owner, Ameritech, last week announced a strategy of devel-oping local-area network and personal puter versions of its mainframe sys-

computer versions of its maintraine sys-tem products.

Underscoring the strategy behind the move, Joseph W. Parrelly, ADR vice-presi-dent of research and development, told 1,500 attendees at the company's annual users group meeting here that ADR be-lieves networked PCs, rather than minicomputers, will tecome the focus of tradi See ADR page 8

CW SPECIAL REPORT

Capacity plan: Ocean Spray MIS prepares to meet 1990

ADDROFTS STORY OF THE STORY OF THE STORY OF THE STORY STORY STORY OF THE STORY OF T

In James Cornelly
PATMOUTH, Mass. — The view from
the Mild department extends from the
PATMOUTH, Mass. — The view from
the Mild department extends from the
Patpriers' (250 leading place across seed
The setting relia the casual observe
that Gooss (Sprg V contemporary et or
opic from Sprg v contemporary et or
opic from

el EX sits just eight feet above Ptyme Harbor's high-water mark but in no lot Ocean Spray once was but in no lot Ocean Spray once was but in no lot ocean Spray once was but in no lot ocean six MS department has to cope with and plan for steady growth and the changing nature power hard the changing nature MIS director Thomas Moderatine. Growth has meant moving up from a Burrougha Corp. minicoen-poster to the IRIM 5000 that Ocean

oray has on order.

The company's projected MIS rategy includes the installation next ay of a 3090 Model 150 and periodic

quirements for major applications on a six-month basis through 1990. In addition, the company has gone from a centralized strategy to a decen-tralized one and back again to

In five years, Ocean Spray has added and expanded an informa-tion center to support personal computers, electronic order and bill processing, manufacturing software and a mainframe-based

cision support system. All of these moves are inte ed to support the company's revenue growth while keeping its employment See OCEAN page 143

Installing the first Model 400

Nielsen's 3090 upgrade was 'smooth,' users say

/ Jean S. Beeman GREEN BAY, Wis. — The first in-allation of an IBM 3090 Model 400 ven flawlessly, according to the MIS aff at the Niseen Marketing Be-such division of A. C. Nielsen Can sta participated in it. In fact said participated ick O'Hara, manager of computer review, "the whole thing went month as ice."

amooth as ice."

The installation, which took place at the end of August, was a \$4.1 million field upgrade from the company's 3090 Model 200. It took 19 hours to complete — not counting the 12 million securities.

ny 2000 Model 200. It took 18 been to complete — not counting the 12 bours of site preparation required below the site properation required below the site properation required below the site properation to the site propera

lyzing data from 2,800 etc

Analysis data from 2,000 classes. Figure 10 per 10

sen jumped at the enance.
"We were running at a constant
98% or more of espacity." O'Hars
said. "When you're running at that
level, you're afraid you're going to
fall behind in your work load if anything brings the system down."

Initial preparation for the upgrade began during the summer, when ad-ditional electrical work had to be done to Nielsen's 9,500-sq-ft computer room to accommodate the extra power demands of the Model 400 up-grade, which was configured with 128M bytes and 64 channels.

The actual installation involved bolting two Model 200 CPU units to-gether, adding two more 3097 water cooling units and two more 3089 mo-

clean" power.

There was software preparation wolved as well. Nielsen systems enineers had to plan on running the anne copy of MYS/XA Version 2 Respect. If on both CPUs. That was because 1.7 on both CPUs. That was because Wellsen cleaned to me should be the state of the property of the

There is only one copy of the MVS/ XA operating system, and the four CPUs act as a single virtual comput-ing system. In addition, some micro-code on the Model 200 had to be up-graded to match that of the Model

At soon on Jug. 22, an IBM truck palled line Nation's particip for with palled line Nation's particip for with hours to uncrease. The alternous was speet positioning the Model 400 sp-pade next to the Rodel 200 or the page from the Rodel 200 or the speet positioning the Model 400 sp-pade next to the Rodel 200 or the speed of the Rodel 200 or the speed of the Rodel 200 or the of first writing on the back passet that had to be done, "and Dong Dowle-ness, managing of whething arrives at those gives were well rested before they began to word."

The IBM staff members selected to do the wiring had practiced on several IBM in-house installations of the Model 400 as well as on several beta sites at IBM customer locations. One of their most important tasks was hardwisely the processor search.

hard-wiring the processor or to all four CPUs. Also on hand was s parts expert who was prepared to locate a re-placement for any missing or faulty part and to have it flown in within

Several IBM supervisors observed to job from start to finish, taking stes on the installation process. otes on the installation process. They wanted to learn a lot from our nstallation and to refine the proce or the next install," O'Hara said. At 6 a.m. the next day, a Saturda

At 6 a.m. the next day, a Saturday, the Model 200 was powered down, allowing the IBM installation team to wire the two halves of the four-CPU machine together. Until theo, the Model 200 had been running produc-

During the installation, there was sly one way to move: forward. "An all-out back-out was out of the ques-tion," said Dan Berg, senior systems programmer. "There ware no attrac-

was ready to be powered up and test-ed: at 10 p.m., IBM turned the maed; st 10 p.m., IBM turned the ma-chine over to the Nielsen MS team. After three hours of software test-ing, the machine was deemed ready to resume production jobs. In all, Nielsen's operation was

tiosed down for 19 hours, while the total installation took 38 hours in-cluding the overnight break. Now that Nielsen has the extra ca-

Now that Nielsen has the extra ca-pacity. It plans to protect it with a new 750 kVA uninterruptible power supply built by Emerson Electric Co. that will provide 15 minutes of pow-er before a diesel generator is turned

e.

Purther expansion, including the ddition of more IBM or IBM-compatible computers, is possible, O'Hars aid. But for now, he added, he just anats to keep everything up and raning. "When you're running as many box as we do," he said, you never so get back the time you lose."

Bosman is a Computerworld con buter based in Chicago.

In this issue

Tandem announces high-level Cobol 85 compliance/ 4

RT PC's abilities revamped by IBM/ &

Honeywell slashes work force, reorga-nizes noncomputer operations/ 6

Motorole uncrates high-end 68030 32 bit microprocessor/ 10 Aquino meets with Lotus, DEC on safe-guarding elections/ 10

MAP users becoming more knowledge able, more critical/ 12 GSA study finds "pockets of obsoles-cence" in federal computer supply/ 13

Microsoft system allows PCs to read CD-ROM disks/13 orida public school institutes comput nent/14



agan administration apposes C ess's privacy protection plan/ 14

SYSTEMS & PERIPHERALS ADDS' Motorole 68020-base runs proprietary Pick system/

Third Coast Technologies multiupermicros in full production/ 16 se cuts prices on two ASOII ter nals and graphics subsystem/ 19 Counterpoint introduces multi-ditions to System 19 line/ 16

SOFTWARE & SERVICES

ADR users like product plans, la hitch in 4GL use/ 27 is tool to allow mainframe CICS de preent on PCs/ 27

Pacific Bell to test s phone line in market/ 31

Experteligence to market Al lan for IBM PC, VAX, Macintosty 35

OMPUTER INDUSTRY rtin, Tarks

software/ 116 Talkivideo agrees to acquire Alpha Mi crosystems/ 146

BM invokes voluntary ret grem to trim costs/ 146

EXECUTIVE REPORT

ectronic Data Interchange: Users say spariess transactions cut paper-han-ing costs, eliminate errors and reduce ventories. By Joanne Kelleher/ 29

that's in a nome: SQL claims "stan-and" status as a data definition and senipulation tool. But is it a true tan-uage or just an elegant development id? By Stephen Gerard/ 71 Bankers get the message: The American Bankers association installs low-cost messaging so its national office can keep state groups up to the minute on lobbying issues. By Don Kazemzadéh/ 83

DPINION & ANALYSIS Kirkley on ISDN/ 17 reter on U.S.-Japan chip war e

tion/ 16 Babcock on SQL vendor support/ 27

Ulrich and Hayward on electronic docu-ment conversion/ 31 osenbaum on Compaq's Deskpro

agozzino and Palleni sality assurance/ 91

Alper on AT&T and Quotron/ 146



TURBO

Why are SYBACK & SyncSort CMS the fastest things on no wheels?

(More technology in the tank!)

Call (201) 930-9700.

Arrange a test drive.

You say you've always had very simple tastes? All you ever wanted was the best?

Well, step into our showroom and kick a few tires! We'll show you two programs that are the Ferrari and Lamborghini of VM programs.

- SYBACK the world's fastest and most maneuverable backup, restore and copying
- Syncsort CMS the world's fastest and most maneuverable VM/CMS sort program.
- What makes 'em so special? Well . . .
 (1) TURBO PERFORMANCE: Have you ever stepped down

(1) TURBO PERFORMANCE: Have you ever stepped down on the gas in a dangerous driving situation and discovered... nothing? Well, that'll never happen to you with these two vehicles.

Both are equipped with our special brand of 'software turbocharging' We call if FBT, which stands for Fluid Buffering Technique. Our competitors call it something else. We discovered FBT one dark and rainy night when we were trying to find a way to speed up the movement of data in sort.

trying to find a way to speed up he movement or data in son programs. After crying "Eureka", we applied it to our OS and DOS sort programs. The results were . . . wow! Now we've carried that bright idea over Into VM dumporestores and sort programs. And the results are still wow!

- Compared to any other backup or sort program clogging the nations VM thruways today, SYBACK and SyncSort CMS will save you up to:
 - 50% in Elapsed Time;
 - 45% in VTime;
 - 55% in TTime:
 - 75% in SIOs.

So who needs all that speed? You do. If you want to optimize your VM operations, stay out of needless DP traffic jams, and make the boss happy with your throughput.

Here's what happened to one large government agency: Their backup operations used to require a full 24 hours to complete. Then they installed SYBACK, Now their backup takes — are you ready? — one-half hour!

(2) EASY HANDLING: SYBACK and SyncSort CMS are among the most flexible, user-friendly programs ever produced by anybody anywhere. That's one reason programmers love 'em. And where does it say that backup and sort operations have to be havif to be good?

(3) "MISTER SOFTWRENCH" SERVICE: We've got the best pit crew in the business. More than 85% of all customer requests are resolved within 24 hours.

If you'd like to put a little high technology in your VM tank, give us a-call. We might even take your used VM dump-restore or sort program as a trade-in!





Tandem first with high-level Cobol 85

by helty house, CIVERTING, Calif. — Thodem CHUPETING, Calif. — Thodem CHUPETING, Calif. — Thodem Computers, Inc. last week became the first vender to assessmen high-week control and the control through the

The National Computing Center, in independent testing agency that his provides training and consulting revices, works under contract with the U.S. General Services Administration (GSA). The center is reported to certify compilers for high-level to certify compilers for high-level

Other companies, including Micro tous, Inc. and Ryas-McParland orp, recently reported GSA test re-ults that certify their compilers as onforming to the standard's inter-

conforming to the standard's inter-mediate-level operfactations. By having a complier that meets all the requirements of the current of the language lack.

The presence of such features cause activate of such features activate of such features cause activate of such features activate of such features activated activates activates activated activates activated activates activated activates activated activates activat

Although Robinson was unable to quantify the productivity improve-ments, one of Tandem's Cobol 85 beta-test users credited the full im-plementation for greatly accelerating, two of his development projects.

own, has used the Tudens product internally to revise a nationwish testernally to revise a nationwish enternally to revise a nationwish enternally available last May, has also dispatch system for police in Riversiak Councy, Calif. 14 standard pre-ference, which the Utab company has also used, Osbel 85 supports re-grants for be written with nested IT statements. Tainden's high-level imbedies that the control of the control

Impanager.

Ingesther, these and other added dures render the language well ted to structured programming, as, they simplify software maintenee. They also promote the creon of reusable program modules,

IBM unveils net strategy

ivity scheme, IBM announced val network management appli-on packages that run with its Netview/PC product and main-me-based Netview. The programs k with Rolm's CBX and other

In the control of the

velopment, explained that the de-logment software is at the heart of M's announcement because it is the name by which non-IBM equipment of the transmission of the contraction of the c

can enter an IBM network.
"The controversy is that stan-dards are being put on the table. Al-most all non-IBM vendors will have to decide whether to play or not. Us-ers will have to decide also," Doll

to decide worstless or severe and extended have to decide alone." Data decided alone. The control of the contro

Rollouts key PBX-SNA tie

By Stinety Shanes products in ISBV Netwee secrete imageness fad are there has programs and transition of the law programs and transition of the law programs and transition of the law product program that will being prince program that will being prince program that will being being the law products of princes being and the law products of 1807. Include the following.

Include the following.

Including the following the customer with an accounting of flavor Computerated was produced by the law products of the programs that allows meet to flavor the law products of the programs that allows meet to flavor the law products of the programs that allows meet to from the Robin Cast Dead Children to the law products of the programs that allows meet to from the Robin Cast Dead Children to the law products of the programs that allows meet to from the Robin Cast Dead Children to the law products of the la

effective ways of configurities assists.

The state of th

CONTENVOLD

Eather in Chief

917; Colyvight 1986 by CW Communications,/inc. As in Colyvight 1986 by CW Communications,/inc. As in Collegation-ord can be purchased on 35 mm micro doctal Extry Dect., 300 Zeach Rose, Ann Arbox, labor, to Discussion Dept. Six subscription information. PMOTECCIFF MEMORY SIX programmed in Six programmed in PMOTECCIFF MEMORY SIX programmed with the Copyright Colemans Cell Six or users registered with the Copyrigh Colemans Cell Six Of Jen Copyr of the article, plass 3-30 per page is the 21 Congress Street, Salows, Nature, 1919 Co.

all Requests for reprints and permissions only should be address Communications. 75 Cookhuste Road, Box 9171, Francisco Cookhuste Road, Cookhuste









IBM unveils net strategy

From page 4

environment will have to support it.
But it is going to be awkward for
Data General Corp. and DEC to say,
We support Netview, "he said.
Francis McInerney, senior analyst
with Northern Business Information,
Inc., said the connectivity announcement airmait. ent signals a major change in d

ion for IBM.
"It's the beginning of a new strate-y at IBM. IBM will force its lines of susiness to meet more rigorous prod-ett specifications. It presages a con-olidation of architecturee that will ead eventually to a single architec-

indirectably to a single architectural content of the American State of the American Sta

etworking, Inc.
Netview/PC and and the Netvis
sterfaces offered by other vendtill be available in 1987. Netvie

PC carries a onetime charge of \$2,000, IBM said. In addition, IBM announced the

In addition, IBM announced the llowing programs:

The Token-Ring Network Manag-Version 1.1, a version of IBM's pre-ously announced network manage-ent program for the IBM sken-Ring network that will work ith Netview/PC and host-based

Rollouts key PBX-SNA tie

iects telephone call informati m up to 10 CBXs or PBXs of oth ndors. Netview/PC can transi s information to the three as st programs to perform billi-ficuration planning and netwo

consuperation passenge on defeorita-mytes.

In the passenge of the passenge o

work. It carries a onetime charge of \$1,406 or an upgrade charge of \$75. • Separately announced, the IBM 3270 Personal Computer and 3270

3 Personal Computer AT can attactional Computer AT can attact Token-Ring network using it viously announced IBM Token and the IBM Token-Ring network PC Adapter II can the IBM Token-Ring netwo bios program Version I.1, which is announced last week. 1 er II cards 1.1

en-Ring Netions versions at 135.

The IBM Token-Ring Starter Kit neludes adapters, cables, network-oftware, interactive installation discounting for assembled to assemble the startes of the assemble to the startes of the startes of

IBM unwraps entry-level 3480

RYE BROOK, N.Y. — IBM last week took the first step in what analysts have long expected would be an attempt to move its 3480 cartridge tape drive technology into smaller

systems thanken.
The company introduced an entrelevel 3450 system that offers a slover data transfer rate and lets expan ability in exchange for a lower primer to high-end, mainfram-orier and in Man and in Man.

le tape unit. Both the 11 and 22 ve

magnetic tape with a re-nsity of 38,000 byte/in.

However, the 11 products feature data rate of 1.5M byte/sec., compared with 3M byte/sec. for the original features.

pared with 3M byte/sec. for the origi-nal products.

In a second to having the slower data transfer rate, the new tape sys-tem does not allow customers to string smultiple 3450s together will-on-monitor to the second string a subject to the second string and the second as \$8,000 data control unit com-munication feature. Standard fea-tures in the original models allowed three in the original string the B11 cones \$49,000, and the B12 cones \$40,000, and the B12

be available generally during the first quarter of 1987.

Try ABR

Innovation's Automatic Backup & Recovery System

Incremental Backup - Backup of changed data sets.

Archiving & Superscratch - ABR will automatically backup and scratch data sets off disk and keep track of the data sets in it's own data base.

Automatic Recall - of Archived data sets under TSO or batch jobs.

Compression Option - Backup of Archived data sets in a COMPRESSed format.

DASD Management Report

Backup and Archive report

Wasted space report
 Generalized report writer_format your own report
 Extensive ICF VSAM reporting

Unlike device support, ISPF panels and much more... 1500 Users - Most widely used MVS disk management system

Performance - ABR is the fastest DASD management system. ABR

will use less system resources than any other system.

COST - ABR is \$8,500 (perpetual license) for one CPU for existing FDR/COMPAKTOR customers. Non FDR/COMPAKTOR customers, total cost is \$16,500 (perpetual license).

Available for IBM VS1, MVS and MVS/XA systems.

For The Fastest DASD Management System... Fill in the coupon below or call INNOVATION at (201) 777-1940 for further information or a 90-day trial.

I am interested in ASE Innovation's DASO Management System	Name
	Company
□ Seed Proc 99-day Trial and T-Shirt	Address
	CopSawZep
Seed FDE/ARE VS.0 User Manual and ARE Pester	Trispinar ()fat



IBM shores up RT with storage, communications features

Revamp said to trail Apollo, Sun terminals

y Reseasely Numbers
RYE BROOK, N.Y. — IBM last
reck revaluped its RY Personal Comuter, which has reportedly been a
ajor disappointment in the workation market since its introduction

With the nanouncement, likit de-resent three areas that were considered drawbacks to the HT PC — price-ge communications expabilities and an expansion of the price of the

ing to King, the number of value add-ed resellers, which now totals 66, and third-party software developers are

"We're very pleased with how the RT is doing," King added. "We're go-

and better and stroker also crosser:
Included in the amonocomous variety
the HT PC 0131 Model 18, related
the HT PC 0131 Model 18, related
the HT PC 0131 Model 18, related
the temperature of the temperature
of the stroke of the temperature of the temperature
of the stroke of the temperature of the temperature
of the stroke of the temperature of the temperature
of the ALX possessing system and our
The temperature of the temperature
of the ALX possessing system and our
The ST has pose from such to
The ST has pose from the ST has the
The ST has pose from the ST has the
The ST has pose from the ST has the
The ST has pose from the ST has the
The ST has the ST has the
The ST has pose from the ST has the
The ST has pose from the ST has the
The ST has pose from the ST has the
The ST has pose from the ST has the
The ST has pose from the ST has the
The ST has pose from the ST has the
The ST has pose from the ST has the
The ST has pose from the ST has the
The ST has pose from the ST has the
The ST has pose from the ST has the
The ST has pose from the ST has the
The ST has pose from the ST has the
The ST has pose from the ST has the
The ST has

It was obvious that the original arouncement was extremely deficent," he said, referring to the RT, who the said, referring to the RT, with a resident in January. "They have supportly fixed the worst parts." With a series of hardware options, opprades to existing RT nottware and was obtware programs, IBM significantly beefed up storage capacity of communications capabilities. However, the announcement did specifically address graphics per-

pect graphics performance, and IBM needs to improve the RT's graphics capabilities if it is to compete with Apollo Computer, Inc. or Sun Micro-systems, Inc. systems, said Vicis Brown, a senior analyst at Interna-tional Data Corp. in Framingham,

"The one major obstacle now is graphics performance," Brown said. "I guess they are taking it one step at a time." According to Brown, an RT user requiring a high-resolution color display with three-dimensional capa-bilities would need to rurchus. bilities would need to pu model in the IBM 5080 dis tion line, which has a star of \$13,000. The other we play sta-ting price of \$13,000. The other workstation vendors offer high-resolution color monitors bundled in their systems. But IBM's King maintains that an RT with a \$500 monitor, which would cost between \$25,000 and \$30,000, is price-competitive with the high-resolution, 3-D offerings

The new AIX release, which has a one-time charge of \$2,295 and will be able in March of next year, can support up to 16 users concurrently. It includes System Network Architecture capabilities to support the LU1, LU2, LU3 or LU6,2 protocols over a Synchronous Data Link Con-trol connection. The LU6.2 protocol can support a connection to an Ethercan suppose a connection to an across-net-based local-area network as well as improve the RT's ability to com-municate with other IBM systems. Hardware options include the fol-

 A 4M-byte memory expansion card that sells for \$4,300 and will be available this month. An improved floating-point ac-celerator card, priced at \$1,995 and acheduled for release in the second quarter of 1987.

quarter of 1987.

• A small computer systems interface adapter card, which would allow the attachment of up to seven of the recently announced IBM 9352 direct access storage device. The \$1,080 card will be available in the

\$1,080 card will be available in the accond quarter of 1987.

A 370 host interface adapter, which provides a link to transfer data between the RT PC and a 370 host at a speed of 2M bit/sec. IBM spokesmen said. Scheduled for re-lease in March, it will sell for \$1,795. iBM's software announcements in-cluded releases of the RT Virtual Resource Manager, which will sell for \$895, and SQL/RT Data Base, which can be licensed for \$1,000.

Oracle intros target distributed data base management

By Charles Babcock

RELMONT, Calif. — Oracle Corp.,
me of the fastest growing data base
management system vendors, today
se expected to launch a suite of prodcate addressing the infant world of
fastrobated data base management.
Industry observers say the prodcate will continue to promed Grande's Industry observers say the products will continue to propel Oracle's growth for the next year and a half, but after that, Oracle may confront a lack of expertise in IBM 370 architecture and a possible competing distributed.

uted data base product from IBM.

Oracle's SQL Star includes Distrib-uted Oracle for multiple-site query processing and single-site updates SQL Net, which provides interfaces to a variety of comm

ing among app et, which probase management systems.

Kenneth J. Burke, vice-president
of Alex Brown & Sons in Baltimore,

says the announcement keeps Oracle in the forefront of relational technol-ogy. But, he adds, "Tm not sure the market is ready for distributed data

base management yet."

B. Michael Braude, vice-president
of the Gartner Group, Inc., says Oracle's SQL Star will enable its revenue to continue to grow at a rapid pace for the next year and a half, but after that, it is likely to find it can't hire enough System 370 end up its pace of produ

and provide support. Oracle's reve-nue is projected to climb to \$116 mil-lion in 1967, Oracle said.

lion in 1967, Oracle said.

Also, IBM is likely to come out
with a distributed data base mainagement system, code-named Star Burst,
in 1988, Braude says.

Oracle and its rival, Relational Oracle and its rival, Relational Technology, Inc. of Alameda, Calif., are pioneers in the emerging field of distributed data base management. Relational Technology announced In-gres/Star, a distributed version of its

gres/Star, a distributed version of its SQL-based ingres, in June, with a fourth-quarter delivery date. Kenneth I. Cohen, Oracle market-ing director, says the distributed of the base revolute. "ropyide a user

ing director, says the distributed as user with the illusion of a single, homogeneous with the illusion of a single, homogeneous consist multiple data base management systems at exattered size. At this stage, the use of multiple sizes par bransaction is limited to question to the contract of the contr

and Oracle can access other vendors SQL-based, oracle oracle oracle oracle or formation, Ooben ago: Distributed Oracle is available in-mediately to run under IBM's YMM. CMS mainframe operating system. Digital Requipment. Corp. is VMS oper-taing system and the IBM Personal Computer operating system, PC-DG. Initially, Distributed Oracle will be able to access IBM's VM relational drata base management system, SQL/data base management system.

D8, he says.

Oracle retails for \$1,000 on the PC, for between \$24,000 and \$96,000 on minicomputers and for \$160,000 on the IBM 3090 Model 400. Fees for the distributed data base products will be an additional 25% to 50% of those

Make	your	COBOL	applications	fly

COBOL development environment on a PC DOL development environment on a r.c. Already fast, the latest version of VS COBOL Workbench really flies, supports test version of VS-CUBUL Workbench reaty tites, supports
Report Writer, has more extensive syntax, improved screen
handling and host testing facilities.
CICS compatibility and a
visual testing facility. If you're concerned about productivity, then make sure you pick the best. Write MICRO FOCUS

ore Road, Palo Alto, CA 94303 iephone: (415) 856-4161 Yes, I'm inn age of development products for PCs.

PC DOS ___ UNIX RT PC Other Tale Con A.L. High Fernieminca Level II COBOL. Application Gen 7--D Mr. COROL Send to: Micro Forus, Inc., 2465 East Beysheer Road, Palo Also, CA 94303



thistrophic...CPU is at ush for resource. occur at peak time

But now there's VMMONITOR.

VMMONITOR'S "AUTOPILOT" FOR YOUR SYSTEM

VMMONTOR's unique System Automatic Monitor (SAM) warns your systems personnel of potential problems before approaching the critical stage. SAM will advise you of remedies, or even take corrective action on its own.
With SAM on autopilot, you'll experience emooth navigation through minifality 100 load balancing, resource allocation for compute-bound users, and threshold monitoring.

ACCURATE MONITORING IN THE REAL-TIME WORLD

When your system has performance problems; new and faster hardware is

But now there is VMMONITOR
VMMONITOR accurately evalua
current status tes the

current status of your system, reports on the essential CP variables, and recom-mends specific actions to improve VM performance.

VMMONITUR can save its cost m times over by dealing with inefficienteed of just throwing more hard at the problem.

PULL INSTRUMENTATION PERSUS "IDNOT LIGHTS"

The hectic environment of a busy Data Center is no place for imprecise, and sometimes contradictory, information. VAMONITOR gives you instant and easily-understood full-screen graphic representations, menus, and displays

nactors. VMMONITOR can be used with

CLEAR MANAGEM REPORTING, TOO

VMMONITOR gives you graphic sum-maries, or detailed reports—all available on demand so you get the information you need when you need it.

A SPECIAL INTRODUCTORY OFFER THROUGH OCTOBER 31

VMMONITORis regularly priced at \$9,000. But until October 31, you can get VMMONITOR for the introductory price of \$7,000. And if you are a VMCENTER

customer, be sure to ask about the spe-cial discount for you.

To order VMMONITOR at the introductory price, and with a 30-day trial period, phone:

800-562-7100 703-264-8000 in Virginia and out the continental U.S.



VIMMONITOR FROM VM SOFTWARE, INC....THE VM EXPERTS

n VM Software (UK) List., Breating, Berkebire, UK, Teier 853548823; VM Software Godbil, Pranicture, W. Ger

Honeywell reorganizes in move to cut costs

Work force to shrink: divestiture rumor denied

by James Commits,

MINNEAPOLE:

Desyring reworth that it plans to sell off any of
these operations, lanesyreds, Inc. Inc.

The property of the plans of the sell of the sell

attained and cont-cutting effect that
till edistances (color) also invergenttion anisomeomist, Receyvel's fraction and the selltention and the sell
tention and the sell
tention and the sell
tention and the sell
ment are remoral through Star
tention and desyration and does will

also the sell
tention and the sell
tentin and the sell
tention and the sell
tention and the sell
te

pet, hecalation of further moves con-de on reports that NEC Corp. of an and Groupe Bull of France — h partners of Hongwell in the puter bushness — were bidding to portions of Honeywell informa-it Systems and that Boeing Co. cated to buy Honeywell's own acco-ded to buy Honeywell's own acco-

tioned.

Reports said NEC plans to acquire Honey well's minicomputer operation in Massachusetts and the large-systems operation in Phoenix. Other sources said Bull wants to buy the

minicomputer operation.
Analyze Dandé Bellomy of Pra-mingham, Mana-based monarch firm historiational blank Corp. mid it could make some for Honeywell to sell its computer operation. He adde-ticated the man of Bancywell if it is ping to sell its systems here."
Bellomy theorised that acquisition of the Sperry accessage group could provide Bioscywell with the re-novement of the Sperry accessed provides and provides Bioscywell with the re-novement of the court of the Sperry accessed provides the province and leverage to divent inself

provide Biographi with the provide Biography of the Bard Biography of the Bard Biography of the Bard Biography, and the Bard Biography of the Bard Biograp

software, Gotta predicted.

of the control of the c

ARR, traditionally strong in EMP 370 maintrane tools, is seeking to "reverage" due tools, in seeking to "reverage" due tools, in seeking to "reverage" due tools, in seeking to passance to the controlled of the Gartner Group, the in Standerd, Conn., who sittended the conference. Emode said traditional LAN ver-tion of the controlled of the con-mana-Basa, lbc. have feered a main-frame software vender will move 100 to the controlled of the con-100 to the controlled of the con-100 to the controlled of the con-trans software vender will move 100 to the con-100 to the con-100

ful platform from which to address communications amangers seeking to integrate LANs into corporate data processing, be predicted.

"The people who make the LAN decisions in many cases will be the same or be working ciosely with the mainframe, data processing opter-people." he noted.

Customer reaction variety, but Par-relly's comments drew a consensus of

chef mennette efferer of the tree of the property of the U.S. and Canada. Benerved already and NOS contracting of the U.S. and Canada. Benerved already and NOS contracting of the U.S. and Canada. Benerved and the property of DFS discountering the DFS contracting of the U.S. and the U.S. a

from.

In a formal statement, the company said, "The work force reduction will be accomplished through a combination of attrition, early retirents and layoffs. In addition, ealary increases will be severely limited in 1967, and the company will implement other cost-cutting measures affecting most of its locations.

approval. "I think it's great. PCs have phenomenally low costs, and nesers are tirred of waiting on host sys-tems," said John LaMora, project-manager of the installation of Data-com/DB at Raiston Perisa Co. of St.

Louis.
Customers also applauded the broad effort to enhance ADN's tradibroad effort to enhance ADN's tradicustomer suggested that his PC/LAN
strategy might be too dependent on
the market developing in the direction desired by IBM. "I don't see voljobs. Pirkus, senior assistant programmer of IPO Information Services, Inc., a Rancals Moding company in Minesagolis.

The Company product and the ADN's ADN's OFFICE ADN's OFFICE

The LAN products will be ADR's First C-impages product set. Some of the products have already been con-verted to C through a contract with the federal government to produce C ventions for Boncy well, be, mini-computers, Parrelly said. In addition, the following develop-ments were announced to users: • ADR will interface its maintrame development tools with a relational data have management may be the re-

said.

• ADR is in the process of develop-ing expert-system technology for Look ESP, their PC-based product that will be delivered within a year. Look ESP will take data from ADR's mainframe performance monitors

TOP OF THE NEWS

NEWS ton page 1 mot fully disposed of the issue. Di-pidyne Corp., which initiated the sait against DG after the Work-bore, Man. Pasied firm refused to incuse its RDG operating system to makers of Norm-compatible motion of Norm-compatible and that it intends to pursue its case in

A hearing on damages is sched-uled this week in U.S. District Court in Sun Francisco.

Addition-Total State of the Interior of desicting publishing firms with the announcement each last week of an agreement with Skinoft, Inc. to condevelop a dealtop publishing package to run on IEBM and compatible personal computers. Astico-Tute refused to comment on product specifications, availability or pricing.

Apple Computer last wesh drapped the prices of its Macintosh family products. The Macintosh Plian was reduced from \$2,500 to \$2,100; Macintosh 5128 Enhanced, was cut from \$1,000, and \$1,000 to \$4,000.

and analyze it to identify system bot-tienecks.

• In a move to steal customers from a major competitor. Characteristics in a major competitor. Characteristics in a major competitor. Characteristics in a major competitor. The major competitor in the \$10,000 to the competitor of the competitor. The characteristics is a major competitor of the competitor in the from a major competitor, Cincom Sys-tems, Inc., ADR announced a package

and ADR/DL by the second quarter of 1987.

• A second release of Ideal this year will provide support for VM/ CMS and performance improvements for both batch and on-line modes. Re-lease 1.3 of Ideal was ready in April; 1.4 is due in December, Ideal retails for \$97,900 for OS and \$73,200 for rows.

DOS.

• Ideal will be integrated with ADR's source-code manager, Librarian, in the second half of 1987. With that step, Ideal's fourth-generation language programs can be controlled in the same fashion as third-generation programs. on programs.

• ADR will offer a perform

a ADE will offer a performance monitor for its development language, to be called Look/ideal, in the accord heal of 1887.

a ADE's electronic mail will be enhanced to support VM/CMS and IBM's Distributed Office Support System and will be integrated with best and their product Dataquery for the control of the control of

ADR strategy keyed to micros

essing at the depart-

mental level.

ADE's position is in sharp contrast to rival data have management system vendor Culliant Software, Inc., which a week earlier announced development of a relational Budid product for the Digital Equipment Corp. VAX, saying that minicomputers would be the engine driving depart-

would be the engine driving departmental computing, seasonment, ADR, and it is working on LAN versions of its DBMS Datacom/DB, Datasidetion-ary, and D-Net for distributed data will become available at dates and prices that are still unspecified, seasonment of the contract of the property of ADR in a March 1987 delivery of a 11,000 version of ADRs fourth-generation language ideal, dubbed ideal Escort, for application development on PCa and

mage likes, management on run — LAND. Her then staked out a position of the land that staked out a position of the land that staked out a position of the land that staked out as a napsile of traditional By other as a land staked out the land to the land that staked that

ACCESS IDMS/R. CALIFORNIA ALMOND GROWERS DID.



"Almonds grow on trees, sales opportunitie don't. So now we have IDMS/R to let our sales people retrieve critical marketing information for customers in minut

Rollsgen

President de CEO California Almond Grovers Exchange The California Almond Crowers Enchange enjoyed a 94.5 protent share of the domestic retail almond under in 1984, but the intermational market was a tough nut to cack. To increase their 40 percent share of the worldwide market, the Enchange recognized that they had to do two things. First, improve customer service. And second, capitalize on each and every sales concentrative.

opportunity.

They also recognized that they could meet these objectives if their key people could obtain timely information in useful formats from the Eschange's mainframe database. That's what Colliner's high-performance, integrated, relational, database are presented in the property of the control of t

database management system allowed them to do.

allowed them to do.
When servicing carsting accounts and setting up now ones, of the packages in mercing and sales and Exchanges in marking and sales and Exchanges in marking and the sales and inventory breakdowns at their fungerity. The DPMMS technical safe is the known of working with an integrated reliational database system that reduces application development times and a cone-effective to maintain. Most importantly,

For more information on how your company can access Cullinet through IDMSR, call told-free 1.800-551-4555. In Massachusetts call 617-329-7700. Or write to Cullinet Software, Inc., 400 Blue Hill Drive, Westwood, MA 02090-2198.

Cullinet

An Information Technology Integrat

Motorola unveils 32-bit, 8-MIPS 68030 chip | Aquino meets

By David Bright
AUSTIN, Texas — Putting pressure on rival Intel Corp., Motoroia, inc. last week introduced a 32-bit microprocessor with double the performance of the MC88020, its previous

high-end chip.

Motorola officials claimed the 8
million instructions per second
(MIPS) 68030 would help maintain

uid keep some systems vend m switching to the Intel camp. Despite the enthusiasm, however

According to Sakaguchi, each system tion. More software packages will be will be configured to the borrower's added as they are released, Sakagu-

"These evaluation products can be used to ensure Apple is on a corporation's approved vendor list," Sakaguchi said. She added that the length of the loan is up to the business development manager, but it could last as long as a formal evaluation period, if

SALL 1986

high-tech reps

By David A. Ledium

BOSTON — Representatives of four U.S. companies planned a weekend meeting in Boston with Philip-pine President Corazon C. Aquino to discuss steps that could be taken to assure free elections in that country

tur's headquarters.
The gathering was arranged by Allen Weinstein, president of the Center for Democracy, a nonprofit foundation affiliated with Boston
University. The Center for Democracy claims to be dedicated to promoting democratic institutions in the
U.S. and abroad.

U.S. and abroad.

Weinstein brought the companies together to try to provide technical advice and support for the Philippine government's Commission on Elections and for the Philippine citizens' group, the National Movement for Free Elections, according to Paul Machanam - denutré director of the

prove, nor reasonal neverance, tree Nankanson, a deputy director of the Center for Democracy.

The Pallippine electron proves the Pallippine electron process, which was tainted and manipulated under former Prodefor Ferdinated articles of what they have been depended for the Pallippine application of the Pallippine update the voter registration list and make sure it's as clean as possible. Taid is source at Lean who requested anonymity.

CHRIS GANE'S NEW BOOK

Developing **Business** Systems In SQL

using ORACLE on the IBM-PC

Send check for \$45 per copy (ske \$2 shipping in US, \$4 non-US) or call 212/245-8670 at any time to order with your redit card, or for broch

Big users get Apple loaners

BBN presents a series of infor-mational seminars for engineers, accestists, and other technical pro-fessionals. The series focuses on

the use of data management and analysis software systems in

The seminars feature an exclusive deo interview with Dr. J. Stuart

nter, world-renowned expert on

strial productivity, and an inuction to BBN's RS Series

BBN Software Products wcett Street, Cambridge, MA 02238

exciting new products, RS/Explore and RS/Discover²⁶ and/ware. To register for a seminar in a city near you, or for information about the RS Series, call 1-800-253-1771 (in Manuschusetts 1-617-864-1780). The RS Series will bring you a world of undorstanding. No matter what your world may be.





IF IBM AND DEC TIED FOR SECOND, WHOSE DBMS WAS FIRST? ORACLE.

Today, computer users polled in the Software Users Survey rank Cornels Corporation as their number one wendor choice for 1986.

ORACLES' is the number one relational DBMS, with thousands of insulations or IBM neutral new IBM neutral neutr

Surprised? Don't be. Oracle introduced the first relational DBMS and the first implementation of SQL back in 1979.

COMPATIBILITY

The ORACLE® relational database management system is compatible with IBM's SQL and and one of the oracle or



PORTABILITY

SQL/DS and DB2 run only on IBM mainframes; ORACLE runs on IBM mainframes, DEC, DG, ATST, HP,

Stratus, Sperry, Prime, Honeywell and several other manufacturers' minicomputers, and on a wide range of microcomputers including the IBM PC/AT and PC/AT CRACLE runs under MS, VM/CMS, VMS, PC-DOS, ADS/NS, UNIX.** etc. All versions of CRACLE are identical and include a complete implementation of SQL—not a subset.

CONNECTABILITY

Having the same software running on your mainframe, minis, and micros greatly simplifies the task of connecting your machines into a network. ORACLES network software allows micro-computer users to directly access data stored in the shared database on the mainframe or miniscomputer, or copy that data into the database on their micros and operate independently.

To attend the next free, half-day seminar in your area or receive additional information, write Oracle Corporation, Dept. SW2, 20 Davis Drive, Belmont, CA 94002, or call 1.800.345-DBMS.



ORACLE*

COMPATIBILITY . PORTABILITY . CONNECTABILITY

Ottowe (613) 238-2381 □ Quebec (514) 337-0755 □ Toronio (416) 362-3275
OMACJEUK (SUREST) 441-948-976 □ ORACJE-BUROPE (MANDEN, THE METHERLANDS) 31-2159-45344

Call (800) 345-DBMS today.

6:196. by Oracle Conjectation. (URLCLE** 6:1 registered resolution of URLC. DC. Compension. SQL-DC, DCE and ESM on registered resilvancies of SSM. DEC. DC. SSEC Status. RF and Ball Laboratories and resolution registered implement. "Adultation by SCFTWARE NEWS, recommensor section. Copyright © 1960. In Source Middleton. TESM. AP network model.

In the Autofact aftermath

in the Autofact aftermath, users embraced the concept of MAP, swelling the ranks of the users group both in the U.S. and abroad, and vendors by the dozen announced their support of the manufactur-

MAP enthusiasts settle down, take long-range positions

Evolving status dampens ardor

ris has turned to realism he movement to establish Manufacturing Automa-m Protocol (MAP) as the

standard.

During the past year, a number of major corporations have lined up behind
MAP founder and prime user
General Motors Corp. Many
of those companies say, however, that they are still cauusly reviewing MAP and not expect to have the net-

rk standards in place until 18 or 1989. recording to Stephen Ha-manager of automation neering at an NCR Corp. ering to an interior in the kan, "A year ago, anthusiastic.

ritical of the MAP promise."
Hagan was one of approxi-astely 600 users and ven-ors who gathered last web mately 600 uners dors who gathered last week for the fall session of the MAP/TOP User Group. At-also support the (TOP), sponsored by ing Computer Services, which is designed to be survivalent in office

ronments, although it inues to lag behind MAP in user support and product

Nearly 30 vendors ma presentations at the meeting, a number of which concerned a number of which concerned new products. IBM made its public introduction of a se-ries of products from Indus-trial Networking, Inc. that it will resell, and AT&T anred a pilot project with ord Communications.

support of the manufactur-ing networking standard.

But at the recent users group meeting, a number of attendees, while still enthosiastically supporting MAP, also said they expect to pro-ceed slowly with it. Some us-ers said they continue to feel unconflortable about MAP*

of MAP products and insta-lations and said they would of MAP products and instan-actions and said they would prefer to wait until those costs come down. Still others said they see a slow move-ment away from their exist-ing networks, which in many

s represent a con ent. to a MAP

based facility.
"This is our biggest group, and so far these people seem so knowledgeable," said Michael Kaminski, MAP project manager at GM. "They know what they're interested in. They're not just looking."

For example, the new products were not of major concern to Robert Awde, an engineering specialist at Gen-eral Mills, Inc. in Minneapolis. "We have lots of time and resources," he said. "It ources," he said. "It esn't make sense to imple-nt MAP at this stage, because it hasn't evolved yet into its final stage. Basically, we're at the strategy level. e will be writing a rep that contains recommend tions for MAP, and we ho to implement a pilot progra in 1968."

MAP, first developed by GM, is a set of specifications, some of which are still evolv-ing, based on the International Standards Organization's seven-layer Open Systems In-terconnect model. The seven nois for the

composems or the communications process.

A Caterpillar, Inc. facility in Layfayette, Ind., has a long-range MAP goal similar to that of General Mills, according to Thomas Dosier, a for systems analyst. The at is "locked into an 802.3 f for the

strong interest in MAP, he said the company continues to work on its "road map for future enternation" this month, Industrial Networking rolled out a simi-iar product that will sell for approximately \$800 more. The MAP affort, which had slawly critical

uture automation."
Hagan, at the NCR manuscturing facility in Wichita, aid. "Eight now, MAP isn't table enough to make a tatement that we should go 1985 Autofact Conference and Expenses

netheless, Hagan's purchased a MAP start-tit from Industrial orking earlier this year currently writing networking earlier this year and is currently writing in-terfaces to perform functions such as file transfer and mes-saging. But the plant actually runs on a 400-node Ethernet

said, "I'd say it'll be the mid-die to end of 1989 before

dle to end of 1880 occur-MAP's as usable."

Another of Hagan's con-cerns is price. A preliminary study done by an outside con-suiting firm showed that a MAP connection on a net-work could cost as much as 10 times more than an Ether-net connection. "I view it net connection. "I view it right now as a technological

right now as a become investigation.
Eventually, we're hoping there'll be enough MAP equipment in the market to drive the prices down," Ha-



Make Contact

There is a world of information "out there" In dial-up public databases and non-IBM computers. But your 3270 terminal couldn't make contact with them, until now... TSF mainframe software from Trax lets

you use your VM/CMS terminal to communicate with these dial-up computer systems. You can access public databases like Dow Jones News/Retrieval, CompuServe or LEXIS/NEXIS; networks such as Tymnet and Telenet; and even in-house computers like VAX and Prime from your 3270 terminal. Any standard dial-up (ASCII) service can now be contacted from any local or remo 3270 terminal. And because TSF is mainframe-based software, it gives all your users access to these services without installing moderns and phone lines for each terminal What's more, since TSF works through your host computer, all sessions can be saved on the host for further processing.

TSF is In use today at major companies making contact with In-house non-IBM computers, public databases, electronic mail gateways and networks.

For more Information, or to begin a free trial, call Trax today. Trax Softworks, Inc.

Trax 10801 National Blvd Los Angeles, CA 90064 (213) 475-TRAX

NETWORK PERFORMANCE MEASUREMENT

al and (212) 525.44



Despite upgrades, federal computer average age found high

GSA plans to reduce procurement time

By Mitch Betts WASHINGTON, D.C. — The feder WASHINGTON, D.C. — The feder-government s computer inventory, on average, twice as old as the emputer inventory of Fortune 500 suppanies, parity because some fed-ral agencies are saddled with 12-ear-old supercomputers from Con-ol Data Corp.

That is the conclusion of a recent study by the U.S. General Services Administration (GSA) investigating the government's reputation for hav-

the government's reputation for hav-ing obsolete computers.

Uncle Sam's typical outdated com-puter is kept by a large scientific re-search agency, such as the Depart-ment of Energy, and was made by CDC or Honeywell, Inc., according to

Do or team, the study. Francis A. McDonough, the GSA's sputy commissioner for information sources management, said the pudy showed that the government as pockets of obsolescence but that,

Microsoft lets micros read CD-ROMs

not as our as some critics more charged.

The Grace Commission reported in 1983 that federal computers were 2.7 times older than private-sector com-puters. But the GSA's study, using mingham, Mans-based Interna-tal Data Corp's nationwide com-er data base, found that federal sputers were 1.5 times older than one in the private sector as a who ad 2.1 times older than the compu-inventories of Fortune 500 compu-

"In reality, we found a large in-ventory of new computer systems in all sectors of the government," the study reported. "If we could correct

tor." While the GSA was pleased to re-fute the notion that the U.S. govern-ment has a collection of ancient com-puter systems, McDonough said the GSA will work to wipe out the pock-cts of doublescence, in part by finding ways to cut the procurement time for new systems to 12 months or less (CW, March 3).

The GSA's study found that the private sector retains its computers an average of 81 months — 58 months in Fortune 500 companies — compared with 123 months in the

The study singled out the govern-ment's 40 outdated CDC supercom-outers for making the government's tistical average look worse. When the CDC computers were removed from the federal inventory, the averfrom the federal inventory, are aver-age age of government computers dropped to 71 months.

Agency officials said that CDC has not provided an easy migration path for replacing the old equipment and

able to afford new supercomputers.

The study compares a data base on 1.6 million computers throughout the U.S. with a verified government data base of 13,000 large computers. It covers only these



Our Data Entry Systems Are Always Graded On A Curve.

EDMOND, Wash. — Microsoft p. last week aunounced exten-to its MS-DOS microcomputer rating system that allow personal puters to read data from compact (/read-only memory (CD-BOM)

assyrated only memory (L.-1001).
"It is important for there to be a seamles way of integrating CD-ROM intree with existing spileadions. Witten with existing spileadions. Witten with the state of the proposition of the result of the proposition of the result of the proposition of the result of the proposition of a standard file format Unitary Unitary Company (L. 1001). Unlike most magnetic drives to the proposition of a standard file format.

for CD-ROM disks. Unlike most magnetic drives, which are limited by MS-DOS to 32M tytes in a single volume, up to 550M tytes of a CD-ROM disk can be fornatted into a single volume. Existing applications can now access CD-ROM disks without modification.

part of MS-DOS and consist of a hard-ware-independent device driver. These extensions will be provided only to CD-ROM manufacturers on an extension of the control of the control of the country of the control of the control of the country of the control of the control of the Microsoft's MS-DOS extensions in-clude Knowledgest Corp., TMS, Inc. and Reference Technology, Inc.

Keeping data entry profes-sionals happy is the toughest test of all. A test that finds

test of all. A test that finds
Pertec at the top of the class.
Ask anyone with several
years in data entry about the
best systems they've used.
They'll mention XL, CADE,
CMC and Sperry – all system
built by Pertec.
Pertec is the name behind
a majority of the morte's

a majority of the world's installed data

entry systems. And now you'll

find our name on the System 3200 — a family of MC68000-

of MCBOUN-Serties com-puters that perceptively combine date entry with other business functions. No longer is your data entry machine simply a front end to a mainframe or mini-computer. System 1200 gives you popular languages like RMCOBOL and SBASIC,

tworking, PC compatibility, ntralized file sharing/serv-g, word processing and data

communications. If it's a business need, it's a System \$200 feature. Data entry, batch proces

Data entry, betch proces-sing and applications are all handled on a single, reliable machine that supports up to 64 standard and intelligent workstations. Workstations

coax-connected machines that run REMEDY, Pertec's

15 years of DE experience,

coupled with the System



roductivity and reductions

n costs.
Pertec studied your needs and came up with all the right answers – REMEDY and the System 5200. To learn more, call 1-800-854-8412 (TWX 910/ 595-1912) and discover the data entry system that more than makes the grade.

Pertee Computer Company 17032 Armstrong Ave. Irvine, CA 92714

COME BY AND SEE US IN LAS VEGAS AT DEMA OCTOBER 22-24, 1986

Competency test soon to become requirement

We are talking about searching a mal program," Lenkway said. at we will be testing on is the



The testimony came at a heari on a privacy bill sponsored by S William S. Cohen (R-Maine). The b



Wright testified hat OMB's existing les place a high ority on privacy tection and that urther controls uld be costly and burdensome.

uter matching and establis Integrity Boards to oversee, a



VSAT nets assume larger role in big business applications

By Stanley Gibson

Convinced of the benefits promised by very small-aperture terminal (VSAT) satellite networks, several rife corporations are moving ahead th plans to build new networks or

with plans to build new networks or improve existing ones. Mith widely separated locations sationwide, the corporations seek to reduce their expenses for terrestrial seased lines and packet-switched net-works. They also believe they will have greater control if they own and operate a network themselves rather than rely on a long-distance company:

than rely on a long-distance company: or a value-added network. K-Mart Corp., which will be resulting some 2,000 VSATs in its net-work, began by seeking the best de-sign for an all-data, terrestrial packet-switched network. The intent was to take over dial-up batch trans-missions and on-line credit card au-

thorization.

The firm favored a CCTTT X.25 packet-switched network; however, as it received proposals from vendors, it found that the X.25 packetcept could apply equally

> While K-Mart's network grew out of a desire to transm data, but is now planned to include planned to incinae video, Chrysler Corp. built its etwork for video but may adapt it to handle data.

well to satellite transmissions, ac-cording to Walter Z. Badok, senior di-rector of corporate communications and systems reliability for K-Mart. Once a satellite network was set-ed on, the firm found it could add doe to the network at a price of out \$1,000 per terminal. "There was some coolness at st," Budok said of corporate re-sinse to a private video network. ow, management wants video be-e data," he added. K-Mart, as the biggest Visa and instercard accepter in the world, as able to cost-justify the value of a planned network on the basis of

er for Chrysier.
Chrysier's C-band network has been operating for two years, but the expense of building C-band earth states has limited the suto maker to having only 24 of them. Chrysier may convert to Ku-band, which will permit less expensive earth stations to be placed at a greater musher of lo-

"The impact and immediacy of live TV can't be beaten, although it will not replace videotape, fax and memos," Hollinshead said. Chrysler mos," Hollinshead said. Chrysle is its network primarily to demo

or representatives and to train les representatives, he added. Tim Furst, general manager of mus Corp. a subeidiary of Microage imputer Stores that provides satel-ic video nervices to the retail chain's dealers, predicted all micro retailers will operate similar net-

works. "I think next year at this time, the whole micro industry will be wired up with statellike video," he said. Microage uses the network to keep its dealers informed of new products and to train them in sales methods.

General Motors Corp.'s company-wide network, currently being de-

signed by its EDS Corp. subsidiary, will rely greatly on links provided by two corporate satellites, according to Hartmut Burger of EDS. One satellite is scheduled for launch in 1989, and the other will go up in 1990, Burger

The satellite transmissions, which will carry voice, data and video, will will carry voice, data and video, will be part of a corporate communications fabric lackeding servestrial microwave and fiber-optic lines.

GN's satelline network will be considered to the control of the control could be as high as 100,000 VSATs if the installed cost of a VSAT station could be prought below \$10,000.

Gene Amdahi describes new enhancements to ELXSI's System 6400 parallel multiprocessing compa

"...our new M6420 processor and 768 Mbyte memory give you a more powerful tool. Our new VMS compatibility makes the tool even more widely applicable."





ming a wide variety of sophistican technical and scientific application in aerospace, electronics and gov-ernment labs, and in large UNIX operating system environments. Ask for product and application information on ELXSI powerful System 6400 family. Pron ELXSI, 2304 Lundy Place. San Jose, CA 55131. Phone (406) 942-0600.

ELXSI

work to handle debit cards and on-line check authorization.

While K-Mart's network grew out of a desire to transmit data but is now planned to include video, Chrys-ier Corp. built its network for video but may adapt it to handle data, ac-cording to Peter D. Bollinahead, who

VIEWPOINT

EDITORIAL

When users shape standards

The speaker was the head of one of the na-na's largest computer manufacturers, and was talking to one of our reporters about meral Motors Corp. and its efforts to effect to Manufacturing Automation Protocol. GM, gentleman opined, should stick to making rs and stay out of making computer equip-nt standards — as should other amateurs.

ment standards — as should other naniscen-(Transista, users), that have twented mil-timose in Milton of Johlan in the creation of the control of the control of the control products that standards the control of the products that standards in proceed by special products that standards in proceed by special for different standards in proceeding the con-trol of the comment smacks of a se-know-certain rate of direct plantants, may business. Direct the contineer which be waste, not what control of the contineer which be written and the little of the control of the control of the Mile of T. Tondards of the control of the con-trol fine of the control of the con-trol fine of the control of the con-trol of the control of the con-trol of the control of the control of the con-trol fine of the control of the con-trol of the con-

hower of the comment of the comment

Electronic Data Interchange, the subject of this issue's Executive Report, is an excellent case study of a highly successful user bid for standards. As a number of industries — most notably suto manufacturins — crease production. standards. As a number of industries — most notably auto manufacturing — fought to increase productivity, they are the clear benefit of electronically exchanging formatted for the contract of the contract o

panets have reported to 60 the same — or That push from within some 50 industries — transportation, recall, groups, chemical semigrated is being control to the control of the transport of a benefit of the control of the transport of a benefit of the control of the transport of a benefit of the control of the transport of a benefit of the control of the transport of the control of the polylection. Not examine the one of the other control of the control

ne, like the co ome, like the computer executive who ald relegate users to amateur status, may se that in the MAP/TOP case, user in-

argue trax in the SALP/10P Case, user in-volvement slowed the standards-secting pro-cess. True, the road to consensus in the MAP/ TDP world continues to be tortuous. But speed is not the point. The point is that whatever standards eventually evolve must serve critical, individual user needs, or be decensed useless.



LETTERS TO THE EDITOR

Orchestrating contract negotiations

Orchostrating contract negotiations. Devices it is made in emerging reserved to the Mandring renders by meanable, finishing the the Mandring renders by meanable, finishing the the Mandring renders by meanable, finishing the Mandring renders and the mandring preferrance for the mandring renders in agreement the renders of the conjustic finishing the manuscript preferrance benders of the supplication, the contract of the mandring renders of the proposition of the present that it is a supplication of the present the supplication of the supplic he vendor's employees by nount of payment, system as and deliverables are not negotiable Items. the client. Nonscorptance considerations and descorptance considerations and descorptance care all negotiab
My advice is to identify the cri
and performance factors peedemention and

My advice is to identify the critical souverance and performance factors needed to successfully conclude the implementation and to negotiate hard for those factors. In the desire to close a major software sale, vendors often reach a point where there is a high degree of flexibility. The only "trick" is to know when this point is reached and then to know which provisions are truly important

Faster micros offer users control I believe your editorial, "The race for a fac-chip" [CW, Sept. I], completely misses the sign cancer of Intel Corp. 18 80386 chip. If you had been paying attention to your as-ciate, William Zachmann of International Di Corp., you would know that faster micropro-

sors from Compaq Computer Corp. or Corvus Sys-tems, Inc. offer users data processing capabilities at a hundredth of the cost of mainframes with

or is ministrated in the cost of maintraines with roughly the same power.

If the 80386's power is wasted on spreadsheets, we would agree with your "savvy" MIS director who said, "Who needs a Corvette in a 18-mile-an-

who said, "Who needs a Corvette in a 18-mis-am-hour speed souther linking executed Compao, 80098. Consider instead insight every rith a Novell, Inc. lo-cal-area network (LAR) and placing all of the co-porate mainframe applications on the LAN. We are doing just that with IBM Feronal Computer ATs and Novell LANs at our headquarters, and we ex-pect to sure 30% in ongoing software, hardware

pect to save 30% in ongoing software, hardware and personnel costs.

Master file data will continue to reside in a se-cured computer room (abbeit much smaller) and be backed up regularly by a professional staff, but that is where the similarity ends. Users will sched-ule and initiate their own jobe, and the only delays will be those of whiting for data to arrive from the

We believe faster microcomputers are for down-ting equipment, reducing costs and giving users strol over their own destiny.

control over their own destiny.

I hope there are enough influential people in
your audience who will ignore both your advice
and those vendors pushing mainframes so MIS can
do what it is supposed to do: provide management
with the most cost-effective solutions available. s avai

hard J. Hock Director, MIS Echlin, Inc.

A fear is an uncertainty is a doubt

in his letter to the editor, "Merit, not FUD, forms Ford's choice" [VR, Sept. 8], Efrem Mallach indicated that it was probably not feet, uncertainty and doubt (FUD) that caused Ford Motor Co. to choose IBMs as it as sele office submatation vendor. Perhaps not, but his argument was not persussive. He suggested that having a "comfortable beatment partnership" can override technical considerations. In this context, lowever, confort is bother.

FUD by any other name is FUD.

VIEWPOINT

Integrated Services Digital Network: Stalking the chimera

ven though the computer in-destry has evolved from the clear light of cience, it is an independent of cience, it is and the clear light of cience, it is and fools, our legends and twice-told taller. And we are creating more Condider, for enample, its continues of Services Digital Newvert (SBN). It seems straightforward enough, its com-ing to companie to the companie of the vid Terrie points out, both a tendand with the companies of the companies of the com-vidence of the companies of the com-tained the com-tained the companies of the com-tained the com-tai

and data. No mythology there. But if you take a closer look, you will see that ISON has a few of the characteristics of the fabled chinares, a rather university of the rabled chinares, and the rabled chinares with a lion's head, a goat's body and a serpenia tail. Not surprisingly, when the surprisingly one of a service is a result of the rabled chinares and the rabled chinares and the rabled chinares are rabled chinares. The rabled chinares are rabled chinares are rabled chinares are rabled chinares and rabled chinares are rabled chinares. The rabled chinares are rabled chinares are rabled chinares are rabled chinares.

Now we are getting someplace.
You see, at one level, ISDN already
exists. Motorola, Inc., AT&T and Sie-mens AG have announced ISDN child exists. Motorols, linc, at at a mount of mens AG have announced ISDN chip sets, and a few ISDN terminals have seen the light of day. So it is real. Real, that is, if you look at it the way Terrie does, as, in the strictest sense, a Centrex enhancement that provides the strict of a standard, twisted-pair.

Kirkley, a former editor of Data mation magazine, is an industry con sultant currently acting as editoria advisor to Patricia Seybold's Office

channels, one digitized for voice, one for data, and a third 16th billwofor data, and a third 16th billwothat this billwothat this billwothat SDN also can be defined as a
"specific physical and electrical interater that, if abhered it, will exterate that if abhered it, will exDoze more we are liktring the
fringes of reality. When we start talking about a universal network
that the start of the start of the start talking about a universal network
that the start of the start talking about a universal network
that the start of the start talking about a
top the start of the start talking about a
top the start of the start of the start of the start
top the start of the start of the start of the start
that the start of the start of the start of the start of the start
that the start of the st

Remember AT&T's
ACS, Ma Beil's own goiem
it tried to breathe life into
and failed? Follow on version Net 1, sithough less
ambitious, also never saw
the light of day; it became, like ACS, part of
our folkions.

came, like ACS, part of our folklore. Even if ISDN lives up to its own press releases, it will not really be with us as a viable solution until the mid-1990s. In the meantime, the show

1990s. In the meantime, the show must go on. Although they are as fond of a good myth as the next person, MES di-rectors and telecommunications man-agers are a sociably hardbeaded lot. They are beset by problems now, and a chimera is not their notion of an im-mediate solution. This is why TI next

TI is here, and it works. It is not ISDN; in fact, it may someday be a subset of an ISDN network. However, TI is not only solving present-day

The "backbones" that users are now constructing using the T1 multi-plexers are rudinentary but do per mit users to build the equivalent of their own private telephone network. Initially applied as a strictly proto-port technology, Ti does not provide the global connectivity premised by repossess of SSM. But with inno-vative product design and the in-reassing bandwidth being made available by technologies such as fi-ber option, Ti is evolving at an enon-trement of the protopy of the pro-topy of the protopy of the protopy of the pro-topy of the protopy of the protopy of the pro-topy of the protopy of the protopy of the pro-topy of the protopy of the protopy of the pro-topy of the protopy of the protopy of the pro-topy of the protopy of the protopy of the pro-topy of the protopy of the protopy of the pro-topy of the protopy of the protopy of the pro-topy of the protopy of the protopy of the pro-topy of the protopy of the protopy of the protopy of the pro-topy of the protopy of the protopy of the pro-topy of the protopy of the protopy of the protopy of the pro-topy of the protopy of the protopy of the protopy of the pro-topy of the protopy of the protopy of the protopy of the pro-topy of the protopy of the protopy of the protopy of the pro-topy of the protopy of the protopy of the protopy of the pro-topy of the protopy of the protopy of the protopy of the pro-topy of the protopy of the protopy of the protopy of the pro-topy of the protopy of the protopy of the protopy of the pro-topy of the pro

Witness two compa-nies, one on the West Coast and one in the East. Both have helped to fuel the Ti fires. Stratavor

Services to the Services of the Control of the Cont supports data transmission as well.

In Andover, Mass., a company
called Network Switching Systems

predicts that, in two years, available bandwidth will quintuple today's

Large organizations will react this coming "bandwidth glut" building more complex networks or necting more locations. Leverage T1 ischnology, they will create ge-eral-purpose switched networks with dynamic bandwidth allocation, facynamic bandwidth allocation, fault tolerance and true switching capabilities with the ability to route to any port. There will be more data moving, more data being shared and the interconnection of local-area networks (LAN) to create complex, wide-area networks that will look like simple

LANs to the users

Sounds a bit like ISDN, doesn't it? Zuccino points out that although the move to high-capacity TI (and even-tually T2) technology is inevitable cause of need, the move to ISDN is st as inexorable because of the itted to making it a re-

players commenced ality.

But the increasing sophistication of MS and telecom managers who are now implementing T1 nets as well as the rapid evolution of T1 and other networking technologies will have a dramatic impact on ISDN. As ISDN more from mith to reality. begins to move from myth to reality, it will be forced to add capabilities and services that its backers did not on when they first began push

ing the idea.

Careful stiention must be paid to
these savvy users by the ISDN vendors that wish to be major players in the all-digital communications world of 1996. Otherwise, like the chimera and the golem, these companies, too,

Look both ways before crossing over to Unix

ake 10 MIS directors. Ask them to list three things that surface in every computer gaine or newspaper (including one.) Unix will make eight of the Take the same 10 MIS directors.
Ask them if they are using Unix.
Chances are two or three will say
yes. Most of those will be for specialized systems such as computer-aided

design workstations.

This may be fine. We all read about submarines, but few of us drive one to work. What is in the

drive one to work. What is in the new sin not always of immediate use. But it is hard not to wonder if one should do anything about Unix. Amouncing Belease 3.0 is June. AT&T claimed "a watershed in the commercial life of Unix Systems V." it pople of networking capabilities "not available in . . . any other operating system on the open market." Strong words. And AT&T is not known for lying.

Yet the practical difficulties of do-ing useful work with Unix still exist. For one, its file system. It is a marvelgeneral-purpose concept and of Unix's flexibility comes on the file system and using files

ties on it. But the

blow. A second problem is conversion. If Unix systems are to be more than network gateways, they must run ap-plications, new or existing. New ap-plications tend to involve existing files. Unix networking does not beip use these, so existing applications

must be converted. These needs limit the applicability of a new system. Unix or any other. Its opportunities are limited to independent niches, in freestanding applications, when new

freestanding applications, when new organizations are being formed or when a system conversion is called for in any case. A great deal of sup-port from software suppliers is rue-ed before Unix can comwith proprietary

products.

This raises the package issue. Suppose you want an integrated office package. Unix has these, but they are fairly new

and tend to be bug-ride

MMALAGE

MALAGE

MALA

menu-based shells that hide Unix commands from the user also hide 90% of its power. If you like icons.

get a Macintosh. There are s quize well, in developing large-scale software, the programmer's work-bench has few if any equals. In some technical lifelish, the range of Unix-based applications is a big plans. If the plant of the

needs, buy it. But buy it because of its merits, not because it has a Unix

If you have to change systems iyway, look at Unix. It is a good ng-term bet. Using it will reduce your dependence on your hardware vendor, will ease much of your networking job and will smooth your

But in 1986, Unix is neither stan-dard nor dead. For most commercial MIS shops, it is like a submarine. Nice

The Only Distributed Relational Database Solution.



THE DISTRIBUTED DATABASE. With INGRES you get a truly distributed

database. Not just a networked system. Because INGRES is the one RDBMS that works across multiple operating environ-ments. From mainframes to minis to micros. Whether you have a few computers or a few thousand. Which means no matter how large your organization, your data and your applications can be shared You'll have one consistent relational view of all vour data.

The key to your distributed database is INGRES/STAR. Its open architecture gives you universal access to data (supporting multiple vendors' hardware, software and networks), while preserving local control of data integrity and security. Users don't have to worry about where the data is located. how to get it or what type of hardware and operating system are used.

Which means you can build applications and share data that span multiple computers just as easily as if all the data were located on one machine. Your entire comparty uses one powerful DBMS with consistent reliable results

INTEGRATED APPLICATION TOOLS.

Only INGRES gives you a comprehensive application development environment. With a 4GL that includes SQL a Visual Forms Editor and host language interfaces (ADA BASIC C COBOL FORTRAN PASCAL and PL/D. You'll work in an integrated environment that gives you unprecedented productivity in application development.

Your end-users will find it easy to create forms, queries, reports and graphs, too. Because INGRES's Visual Programming tools give them the decision support cana bilities they need. While reducing the MIS application backing

HIGH-PERFORMANCE SQL AND MORE

INGRESS SOL is broadly compatible with IBM's DB2. So you can stay with the industry standard. And move applications easily and quickly, whenever you want.
You can also count on higher perform-

ance, INGRES is uncommonly fast, And provides special support for transaction. processing and complex queries. What's

more. INGRES gives you the high levels of data security integrity and consistency you demand.

So look into the only truly distributed relational DBMS solution. INGRES, You'll see how the INGRES advantage is the key to integrating your dissimilar computers. For more information, call toll-free;

(800) 4-INGRES From Canada, (415) 769-1400

Relational Technology 1080 Marina Village Parkway Alas

AL Brmingham Sep 15	160 St. Louis Aug 19
AZ Phoenix Oct H	NC Research -
Tecron Jul 17	Thiaustle Park Oct 14
CA Los Angeles Jul 16	Winston-Salem Sep 23
Sep 25	NE Omnha Sep 24
Nov 20	NJ Inelan Sep 9
Newport Beach Oct 1	NM Albuquerque Aug 26
Sacramento Oct 18	NY Alberts Nov5
San Directo Oct.8	New York City . Sep 9
San Francisco Aug 12	Oct 21
Oct 15	- Dec 9
Dec 3	Rochester Aug 20
Surenyvale Oct 1	Off Cincurrati Nov 30
Nov 19	Cleveland Oct 15
CO Detret Nov II	Columbus Dec 10
CT Stambel Oct 23	Toledo Nov 18
DC Washington Aug 28	OK Okishoess City Dec 4
Nov 19	OR Portland Oct 29
PL Jacksomille Nov 19	PA Philadelphia . Sep 16
Magni Oct 16	Pittsburgh Nov 12
Orinado Dec 16	TN Nashville Nov 6
GA Athena	TX Austin Oct 23
EA Des Moines Nov 18	Dallas Nov S
EL Chicago Aug 14	Houston Nov 11
IN Indurapole Dec 2	VA Richmond Dec 11
KY Louisville Sep 30	WA Seattle Oct 9
LA New Orleans . Dec 16	
StarweportDec 10	CANADIAN SEMINARS:
MA Boston Sep 24	Calgary Sep 17
Burlington Oct 2	Montreal Sep 25
Newton Dec 4 "	OttawaOct 30
ME Detroit Sep 11	QuebecSep 10
MN Minnespolis Oct 23	Toronto Nov 13
MO Kanana City Sep 18	Winnepog Oct 14

INGRES. The Distributed SQL Relational DBMS.

SYSTEMS & PERIPHERALS



U.S.-Japanese tensions flare

or years, the dispute between U.S. and Japanese semiconductor makers smoldered as inconspicationally as the last surviving embers in a carelessity extinguished cump first. Except for the American chip manufacturers themselves, almost no one paid the faintly glowing coals and their wisps of telliale moles much attantion—or grasped what the embers portanded.

ed.

Even when the squabble finally burst into flames and prompted the U.S. industry to seek government help, most onlookers still treated the drama as a purely local phenomenon that held little or no significance for them personal-

Within the last few weeks, Nowever, the quarrel between the U.S. and Japan has grown from a relatively minor neighborhood biase to a wildfree hat has preven fire beyond the boundaries of the domestic semiconductor business. For the first time, the dispute has enguilf of not only the comparise that make components but alion the ones that use those devices — the products of yesteen and perhapsian, in other

words. Seeing that their own interests could soon go up in snobe, many systems and soon go up in snobe, many systems and seeing the dorland continues to burn out of con-trol, user organizations may be the next major group to feel the heat from

Beeler is a Computerworld W Coast correspondent.

ADDS offers 68020 unit

Applied Digital Data unveils Pick system

By Alan Alper
HAUPPAUGE, N.Y. — Applied Digital
Data Systems, Inc.'s (ADDS) systems divinion has unveiled a series of Motorola, Inc.
66020-based systems running a proprietary version of Pick Systems' Pick operating system and supporting between 16 and
160 users.

160 users.

The three members of the Mentor 6000 series are ADDS first systems based on the 65000 microprocessor family. They use parent company NCR Corp.'s Tower 32 product line as a hardware platform. ADDS continues to market its earlier Pictompatible systems based on the Zilog, line. Z-8000 and Intel Corp. 8008 and 80286 microprocessors, which support from sight

to 64 users. Running the Mentor Operating System, ADDS' enhanced version of the Fick operating system, the Mentor 6000 family is noftware compatible with ADDS' earlier 16-bit systems and supports in excess of 46 bytes of disk storage. "The new systems are for power users," said Robin White, vice-president and general manager of the systems division.

DATA VIEW

"And they've molecular in design for ease of find they we molecular in design for ease of find the entiry-level Model 4 system supports 220 to 80 bytes of main memory, two 1600b-byte disk drives, a 450b- to 500b- protect 200 to 100 bytes of main memory, a protect and up to flow parasited ports. Now available, a base configuration of the Model is protect at 275 000.

When the supports and the supports between the molecular three disk bytes of random-access memory, a 1000b-bar disk driver and a 14-to. access the bat supports up to two 540b-bytes. But it is to the supports up to two 540b-bytes. But it is to the supports between 16 and 15 to 15

consistency to two 3448-5948, Pall. In the consistency of the consiste

To facilitate connectivity and field up-adability, ADDS is offering an I/O sub-See ADDS page 23

Supermicro into production

By Donna Raimondi
POSTER CITY, Calif. — Third Coast

POSTER CITY, Calif. — Third Const Technologies, luc. has announced that its multiuser and multitasking supermicro-computer — aimed at business users — is out of beta test and in full production. The company, formed in 1982 primarily to manufacture high-performance proces-sors and memory cards for vision systems, has decided to expand its marketing efforts into the supermicrocomp

forts into the supermicrocomputer market-place, a spokensan said.

The 286V, which runs under Theos Soft-ware Corp.* Theos 286 virtual operating system, contains up to four Intel Corp. 80286 processors and is said to be confi-gurable for up to 60 users. The basic unit costs \$11,986 and consists of 11th byte of memory, a 52th byte hard disk, eight serial See Suprementon open 2

INSIDE

Texet urivells high-end electron-ic publishing system on generalworkstations/23

NEW THIS

■ Storage Concepts offers parallel transfer disk storage for VME-based sys-

INSTANT ANALYSIS Whatever the arguments for and

against MIPS may be, everybody seems to agree that using a relative performance scale is the right way to go. . . . That is the context in which one should view our

MIPS ratings.

ASCII terminal prices dip use with the IBM Personal C family, from \$1,595 to \$999.

By James Connelly
SAN JOSE, Calif. — Wyse Technology, Inc. has announced price cuts
for two of its ASCII terminals and for
its WY-700 monitor and graphics
hand obsystem.

tis W1-700 monitor and graph-board subsystem. The reductions reflect cost savings achieved through higher volume pro-duction, said Wyse Vice-President of Marketing Chack Comison. The price of the 5-year celd W1-20 terminal wa-ter from \$4.0 keV terminal wa-ter from \$4.0 keV terminal wa-ter from \$4.10 to 1600. In addition, Wyse cut the price of the W1-700, which is designed for

parts of PC-based solutions Comiso said the drastic price cut for the WY-700 was made because of

for the wT-700 was made because of what the company sees as growing market acceptance of IBM PC-based solutions to desktop publishing, com-puter-aided design and manufactur-ing and other high-resolution graph-

Counterpoint introduces multiuser additions to System 19 product line

By James Ceenelly
SAN JOSE, Calif. — Counterpoint
Computers, Inc. has introduced a neries of multiuser systems to its System 19 family of Motorola, Inc.
68000-based computers.
The Unix-based System 19K is

The Unix-based System are a available in configurations support-ing from six to 56 users at OEM prices ranging from \$10,000 to \$50,000. The product reportedly can be con-figured with from one to six Motorola 16-MHs 68020 microprocessors and 600M bytes of disk storage.

A Counterpoint spokesman said the System 19K was designed to ex-tend from the low end of multiuser systems to the 56-user range without switching product families.

He added that the System 19K sup-ports bit-mapped graphics displays with 68020-based display processors. A six-user, single-processor model with 100M bytes of Winchester disk storage is priced starting at \$9,675 in See COUNTERPORT name 22 Und Trained

Comprehent management

Symphony* is one software product that can serve virtually all of a corporation's personal computer information needs.

It is truly a complete workstation...incorporating 1-2.3°'s powerful spreadsheet capability with Symphony's own word processing, graphics, database and communications.

An all-in-one investment, Symphony gains value over time by offering users continuous growth through such Lotus? Add-in products as Spelling Checker, flext Outliner, Symphony Link* and more than 260 independently developed soltware applications.

For the MIS/DP and IC manager, Symphony solves the problem of providing for the information needs of both the power user and the novice. Symphony is easy to grow into and almost impos-

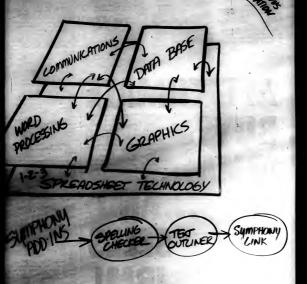
sible to grow beyond.

One product to train on. One company to support you. One investment that grows over time.
For all these reasons, you should consider standardizing on Symphony to meet the personal computing needs of your corporation.

Lotus Symphony

A complete general-purpose software tool built around the world's leading spreadsheet technology.

1996 Latus Development Corporation Lotus, 1-3-3 and Symphony are registered trademarks as Development Corporation Symphony and Development Corporation



SYSTEMS & PERIPHERALS

U.S.-Japanese tensions flare

From page 19

y be in order. or at least the late 1970s nductor companie ir Japanese coun-

on and to increase their market share.
When the complaints went un-

ed, the Japanese gained over-ming market dominance in the elming market do ical area of dynas memory (RAM).

as of devices — erae-

nd only memo e, though, the ed a sympa-anies' plight ng a fright-

"Tou fellows are causing a fright-ful mess in our country with your infernal dumping," the feds told the Japanese, "and we'd be most appre-ciative if you'd kindly refrain from the practice in the future."

After a prolonged period of foot-dragging, the Japanese confessed, in effect, to playing dirty pool and promised to mend their ways. When news of Japan's decision reached Silicon Valley, domestic ven-ders nearest a collection sigh of me.

But the development that menus abvation to American chip makers spelled big trouble for many of their customers. In the wake of Japan's pledge to cease the damping, the phenal mannel facturers have to pay for their electronic parts have shot through the roof. Fur certain classes of dynamic RAMs and EFROMs, for example, prices during the past few weeks have jumped between 100% and 400% in the U.S., they have

remained constant everywhere else.

and experimental and

prices, see a made in the U.X. or the tentif is made in the U.X. or the setting from the prospect of some inspending wender behavingstein, most repetitive measures record integrity and the property record integrity or its customers seriously harmed if a few list players are forced by maintenance of the prices are forced by maintenance or the prices of the prices are forced by maintenance or the prices of the prices are forced by maintenance or the prices of the prices are forced by maintenance or the prices of the prices are forced by maintenance or the prices of the pr

se. So every failure of an obscure sy: ms or peripherals manufacturer otentially represents a squanderer oportunity for technological ad-ancement, especially if the demise ems not from the firm's own miscure sys-

tioned.

And when a leap forward in technology is lost, perhaps irretrievably, users ultimately get burned. MiS executives may want to keep this point in mind the next time they dismiss the industry's growing confligration as none of their concern.

Supermicro

From page 19

into production

ports, the operating system and a 1.6M-byte floppy disk in a 12-slot tower enclosure. Expansion to a four-processor unit with 64 ports, 657M bytes of format-ted hard disk and a 44-in. or 34-in. tape subsystem for backup costs from \$60,000 to \$65,000, the vendor

said.
An optional Theos Software package that emulates Microsoft Corp.'s
MS-DOS operating system is available for \$405. According to the vendor, Theo-DOS allows users to run existing MS-DOS programs, share files

isting MS-DOS programs, snare mes and lock records.

Other options include a disk cach-ing controller with 4.5M bytes of ran-don-access memory (RAM) for \$5,679; hard disk drives that allow addition of disk space in increments of either 54M bytes (\$1,995) or 382M harts (\$4,827; and weprowill-state) bytes (\$9,847); and zero-wait-state RAM, available on a 2M-byte card for

\$2,296.
Also available is either a ¼-in. car-tridge (\$1,950 to \$2,800 for 60M-byte to 125M-byte units) or a 1M-byte, ¼-in., open-reel tape drive subsystem for \$14,995. An available compact disk/read-only memory unit costs \$1,990.

There's still time. Upgrade your micro-mainframe link to Attachmate's powerful 3-N1 2270-PC emulator, and we'll buy your old Imaa" hardware for 800° Noil get fresh technology, and end up with a lot less to worry about.

Why? Bocane the Attachmate 3.N.1 is the only system available that's compatible with IBMN® 3278/79 Adapter So when IBM announces new software packages that only run with their hardware (and ours), you're covered.

We're compatible with irma, too. Keep your old pro-grams and migrate to IBM standards gradually, without changing end-user procedures or throwing out expension software. Only Attachmate offers this kind of ferability

Attachmate sells IBM comparibility—but that's just the beginning!

Edit and print mainframe GDDM graphics at your PC. Use our four concurrent host sessions to save time switching between mainframe applications. Run a prin during file transfer. Or use our IBM-compatible API to

That's why PC Tack Journal says, "Attachmate offers the most versatile emulation boards and software on the market." And why companies like AT&T, Oliveth and Ungermann Bass choose Attachmate to develop 3270 emulation products for them. Find out more about the Attachmate 3-N-1 and our irms buy-back program. Call us for complete information. 1-800-426-6283

Micro-Mainframe Technology

Attach mate

Attachmate Corporation 3241-118th S.E. Bellevue, WA 98005 (200)644-4010

Reference of cold Still in and brackers control to come to 180 to control of females (come in the 180 to control of 180

ADDS offers 68020 system

system, called Distributed Terminal Control Subsystem (DTCS), that con-nects up to 128 terminals to the sys-

DTCS consists of a terminal con-troller with up to eight eight-port re-mote-terminal cluster controllers connected to a 1,000-ft coaxial cable d running from a Mentor sys e remote units in daisy- chair

ion.

When combined with two 16-port
1/O controllers, up to 160 devices can
be connected to a Model 8 system,
ADDS said. Only one DTCS can be installed on a Model 6, the firm added.
Base price of the DTCS is \$4,000,
while each eight-port cluster lists for

Using DTCS, users can also d crease installation costs because of the single coaxial cable used to at-tach 64 terminals, White said. To install separate cables for 64

77

To install separate cables for 64 terminals located an average of 100 feet from a computer rould cost more than \$30,000.

terminals located an average of 100 feet from a computer would cost more than \$30,000, he said, based on a typical cost of \$5/ft (\$15/ft in New York). "The installation of a single DTCS coaxial cable with a total length of 100 feet would be approximately \$4,000," White noted. In a separate matter, ADIS confirmed that it is using Pick Systems, from which is thesence they form when the tensor that the original content of the pick of the

from which it licenses the Pick reper-sing system, over royalities relaying to the use of the operating system in the Mentor 5000 family.

A Pick licensee since 1979, ADIS incide the sait to get judicial interpre-lied the sait to get judicial interpri-license extends to Pick's Open Archald-rice extends to Pick's Open Archald-rice treating it as a disagree-ment, among frends. "White said "We hope to get it out of the way be-fore too leng."

Counterpoint adds to System 19

amali OEM quantities, according to Counterpoint officials. A 36-user, three-processor mod with 200M bytes of disk storage as a 60M-byte cartridge tape drive cost 138,650.

8,550.
The system software is Counter-int's C-XIX operating system.
The company said C-XIX is a com-cible derivation of AT&T Unix Sys-my Release 2.2, with University California at Berkeley Unix 4.2

Texet unveils high-end publishing system

Package designed for Sun-3 workstations

ARLINGTON, Mass. — Texet Corp. recently announced the Live Page 3300 publishing system, mark-ing the first time the supplier of high-end electronic publishing sys-tems has made its software available

tems has made its software available on general-purpose workstations. Based on Sun Microsystems, Inc.'s 32-bit Sun-S workstation family and Texet's proprietary software, the Live Page 3900 front-end publishing system will be shipped Oct. 1 along with Version 3.3 of Texet's publish-

ing software. The vendor claimed that Version 3.2 Pius, which was released in August. It will also allow indexing, scrolling, pan, zoom, enlarging and more math functions.

The Live Page 3300 base system consists of a controller with an attached production workstation. It includes a Sun-3/160 workstation with

4M bytes of main memory, 330M bytes of storage expandable to 660M bytes, an Ethernet interface and an optional 60M-byte, 14-in. cartridge

signed to operate in a network clus-ter and comes with an interface to Texat's Live Wire 5000 local-area

Up to three Live Page 3340 disk-less workstations can be attached to the base system via thin Ethernet ca-

ble. According to company officials, Text intends to bring the cost of a system to between \$85,000 and \$40,000 per seat. The initial Sun-3/160-based system, which includes software, training and installation and interfaces as a laser printer and trail input devices, a laser printer and trail input devices, The softiers of a diskless workstation will cost about \$30,000.



office automation, most ven imply don't know the score

Office managers are discovering that, instead of working in concert, too often the instruments of least own. S COE unications are playing in

ess communications ifferent keys. Unless they've orch tion with Datapoint.

office automation with Datapoint. For years Datapoint has been delivering real local area network-ing instead of token promises. Now, Datapoint further enhance in network with the STARFLEET

ly of high-performance file

variation on its classical theme: maximum integration, minimum

To you, that means productivity gains today and investment protec-tion for the future.

Let us help you get your business communications in tune with today. Write Datapoint Corporation. MS/K-39, 9725 Datapoint Drive, San Antonio, Texas 78284.



Fourth Generation Software with a Blueprint for Productivity

To build productivity, you need a solid foundation. It's yours with the SAS System... designed by the leading architect of Information Center software.

designed by the leading architect of Info Here, in one system, are integrated tools for any computing task. For any environment, from personal computers to mathrames. For seasoned professionals and new users alike.

The fourth-generation language has the power you need to handle all your applications—with English-like commands that get the job done rapidly. And you can design user-friendly front-ends to any application. Even new users can run sophisticated jobs, reports, and analyses... just by filling in the blanket.

Do-it-Yourself Applications for Every Uses. With the SAS System, users get the results they want with-out placing unnecessary demands on your DP staff. Managers can build forecasts and make what if



analyses, Sales repe can track leads and retrieve customer information from a variety of data bases. Your clerical staff can produce stacks of personalized letters. The menus make it easy, and on-line help is always available. But ease of use shouldn't be confused with lack of power. We



SYSTEM



Ready-to-Use Teels for Every Teels. The SAS System brings you more than 125 integrated procedures for data analysis and decision support. Statistical analysis and spreadsheets. Quality control and customized graphs. Project management and much more.

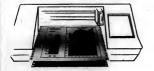
management and much more.

And you can put the SAS System to work where you need it most. The language, syntax, and commands are the same for mainframe, mint, and personal computers. So it's easy to move applications between systems, departments, or company locations.

Bullt in Support for Every Site. When we designed the SAS System, we included support at every angle. It's here for you in our complete documentation. In our free technical support. And in our authoritative training for users at all experience levels.

Take a Move Detailed Look. See for yourself how the SAS System builds productivity in the Information Center. In the Deta Center. On the desktop, Just give us a call for a closer look at the blueprint. International customers, call the International Marketing Department for information on your local distributor.

The SAS System runs on IBM 379700c04/xxx and compatible machines undo QS, TSQ, CMS, DQS/958, SSX, and ICCP; on Digital Systematic Copp. VAX moder PERMOTO; on Data Granard Copp. BCLIPS® My arrives under ACSVX on IBM ACISYO and XTATOO under VAMYC and on IBM FC AT and FC XT under FC DGS, Not all products are averable for cell operating system.









SAS Institute Inc. SAS Circle, Box 8000 Cary, North Carolina 27511-8000, USA 1919) 467-8000, x7000

66) is a minimal relational of \$65 Section line. Cop. NC, 186, it between should assume upon the form of under supplement tradement and denseld sides from the scheduler of the state of the scheduler of the sche

SMART COOKIE

Like you, SyncSort DOS is cut from a special mold.

Call (201) 930-9700.

It's healthy for your system.

SyncSort DOS vs. SM2



One thing about smart cookies, they can spot each other a

mile away.

While they don't flaunt their derring-do, they quietly know they're

the best at what they do. Because substance shows through. Every time. Especially when the going gets tough. And rough, As it often does in

a DOS environment.
For example, a smart cookie doesn't crumble under the pressure of

too many programs and too few programmers.

A smart cookie doesn't waste dough – but picks and chooses the

right ingredient to keep production on the rise.

And sometimes, even, a smart cookle has to be a mightly lough
cookle. That means being on the job constantly. Keeping things
running and humming, Without draining vital resources.

All of which brings us to our smart cookle SyncSot DOS A cut
above the rest if you ever saw one. Check these delicious
adventiones.

BETTER PERFORMANCE

Pop one into your system and you'll see a mouthwatering difference. Immediately SyncSort DOS will give you performance improvements like those shown in the chart on the left.

And performance features such as:

 Autometic Secondary Allocation — With this feature your sorts will never run out of disk space, i.e., no "sort capacity exceeded" messages.

BETTER FEATURES TO IMPROVE PROGRAMMER PRODUCTIVITY

As you begin to digest SyncSort DOS, you'll find it more and more to your liking. With ingredients that out down to size the amount of programming time going into applications.

 SortWriter — A powerful tool that can produce extensive reports as a by-product of your normal sorting — without user exits and the associated programmer investment, Headers, trailers, total and sub-total capabilities provide flexible formatting

Record Formatting — Powerful features like INCLUDE/OMIT, INEC/OUTREC, SUM and others — with capabilities like data conversion, editing, insertion of literals.
 Multiple Output — From a single sorted file, you can create

multiple files and reports. Each can include the same or different data as determined by INCLUDE, OMIT, OUTFIL or OUTREC parameters.

BETTER CUSTOMER SERVICE

Still another sweet advantage of SyncSort DOS: help is always there when you need it. 85% of all requests for service are resolved within 24 hours. We always rise to the occasion.

The moral to this story: smart cookies are quick to reject half-baked solutions in favor of SyncSort DOS. Call us for a demonstration. Once you get a taste you will be hungry for more.

SyncSort DOS One smart cookie deserves another.

SOFTWARE & SERVICES



The continuing saga of SQL

art week in this space, two criticals of ISB's SQL discussed the language through the language through the language through the language through language through language and application. There is another chapter to this close who would like to self fourth-power through the language and application. There is another chapter to this close of the point of the language through the languag

my of them—AIR included—abed to amount on the SQL in the common of the square of the s

laboock is Computerwo

BIM-PDQ

ADR users like product

plans, lament 4GL obstacle

by Charles Bahcone
NASWILLE — When a State UniversiNASWILLE — When a State UniversiNASWILLE — When a State UniversiNASWILLE — When a State University
near age, it had the long-range goal or going together maintra

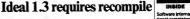
week who found something to agree win in the company's statement of direction. The wide-ranging statement was meant by AID's Vio-President of Bensarch and note address, in which he also revealed the firm's plans for an accelerated product de-velopment cycle. Parrelly said AID's new owner, Americach, has financed an ex-panded development effort, which cludes bringing our personal computer and

nframe products. lees also were in h of ADR's comm

making the research nature to make the anticipated.

The Southern Baptist Annuity Board in Dallas has been a user of ideal for three years. When it installed Belsase 1.3 of ideal as few months ago, it found it had to recompile its 12 to 15 applications, according to Ruth Pankin, director of data

improvements, agreed Jett williams, in-formation center analyst with Watkins Motor Lines, Inc. of Lakeland, Fla., which is installing Belease 1.3. When an Ideal programs is able to call 50 other Ideal pro-grams, they all must be recompiled to run tagether correctly, he said. The recompile step was less critical with releases prior to



INSIDE tional completes delivery of Masterpiece/28

PC/Focus from information Builders is available to run on the Vaxmate/28

Computer Associates announces a release of its performance management utility, CA-Jars/CMS/29

NEW THIS

 Intel upgrades its IRMX86 operating system

INSTANT ANALYSIS

Sophisticated software will "in tegrate LANs into corporatewide in formation sys-

tems and, in many cases, will establish LANs as an alternative to the use of depart-

mental processors."

CICS PC tool nears completion

By Eddy Goldberg
CRICAGO — Realiz, Inc. is set to unveil
RealCRS Oct. 6 at Info 86 in New York.
The 1996 RealCRS product, now in beta
test at appearsimately 20 sites, will allow
applications developed on a microcomputer
to run on both personal computers and

er to run on bornament amainframes.

ReaCICS, used in conjunction with Re-alia's Cobol compiler, allows programmers to develop, test, debug and compile main-frame CICS applications on an IBM Person-al Computer XT or PC AT. This reduces mainframe resource contention and boosts.



two million disk I/O's per day!!!

Call for full documentation or tree 30-day brist.

Prior: \$5400 or \$120/ms. Shared speci support at Auto-duinte feature \$600 or \$30/ms.

Ideal 1.3 must get recompile

"Release 1.3 was not as clean as advertised," said Fa-ter Charmes, manager of systems development at Dyleas Copp. of Protoco, as Ideal had to recompile 60 programs in three applications. Preparation of the batch recomplies took two days, Charmess said. "If you have 500 or 500 "If you have 600 or 600 "If you have considered for more complication," he said.

ed," he said.

ADR's Farrelly said Ideal
was a rapidly evolving prod-

'If you have 500 or 600 programs, the exercise be-

ct with new reseases intro-used every six to nine souths. When ADR changes he way Ideal interacts with 3M's CICS or makes other hanges in the language for erformance improvements.

changes in the language for performance improvements, the recompile step is recom-mended, he said.

Acknowledging that it was a bother, Parrelly said the customer gained the full performance improvements with the recompile step and gained only part of the im-provement without it.

stomers are not used to the Accounting series for IBM complete

ocessing to various depart-nts and plans to provide ducts for that emerging rivet, ADR officials told

the Cadre attendees.
"I think it's definitely go-ing that way," said Todd R. Smith, senior data base ana-lyst with Carolina Power & Light Co. of Raleigh, N.C. His my personal computers ring the last three years

during the last three years and is starting to tie them to-gether into LANs, he said.
"We still believe corporate data processing is going to be mainframe-oriented" with personal computers tied into it, said Leo Cordeiro, manag-

permaid magnetors cell loss, and Lea Corberton, manage, and Lea Corberton, manage, and Lea Corberton, and Lea Corberton, and Lea Corberton, and Control and All Signatures, of Coles Management, and a Coles Management, and a

Elensted Flooring
 Frequency Conserte
 Line Filters
 Security Systems
 Systems Monitors

By Charles Babecek
ANDOVER, Mass. — The
last two accounting applications in the Masterpiece series from Software inherentional Corp. are available,
completing the five-part acries of software for IBM

Accounts Payable and Purchase Order have been added to the integrand series, which includes General Ledger, Accounts Receivable and Pixed Assets Management, according to Robert Bestly, senior vice-president of marketing

of marketing.
Purchase Order features
on-line, real-time data entry
and inquiry. The status of an

invote, purchase order or re-cept may be established at any time, he sidd. An invotes eatry in An invote entry in purchase order, receipt and simplection information. Use ers can execute both the in-sultance order, receipt and singlection information. Use recommendating interven-per many purchase order in the com-traction of the commentation interven-tions of the commentation interven-tion of the commentation intervention of the commentation interven-tion of the commentation intervention of the commentation interven-tion of the commentation intervention of the commentation intervention of the commentation of th

Available immediately, Purchase Order retails for 850,000 to 855,000.
The Accounts Payable application is an on-line system that provides cash requirements forecasting tools and centralized of decentralized disbursing functions, said in the control of the contr

le divisions. All compensating intercompany entries are automatically du-

Emmediately, immediately, or retails for (100,00). Illustrated any post- of the processor o

PC/Focus compatible with DEC Vaxmate

NEW YORK — Informa-tion Builders, Inc. has an-nounced that its PC/Focus fourth-generation language is compatible with the Digital Equipment Corp. Vaxmate Personal Computer under the Microsoft Corp. MS-DOS 3,1

operating system. Support for the Vaxmate includes full data and file transfer capabilities between Pocus on the VAX and PC/Pocus running on the Vaxmate PC, company spokesman Verne Sheidler said.

The Pocus language is the same in both environments and allows Varmate users to access and extract data from VAX files or upload files to the VAX, Sheidler said. PC/Focus retails for \$798 to \$1,285, based on volume.

SQL saga continues

similar to the PC experience may be underway with SQL, Gerrard suggested.
"As proprietors of the standard, IBM is in an envi-able position. But SQL is not that hard to duplicate," he commented at the confer-

The proliferation of prod ucts incorporating SQL since mid-July would seem to bear him out. Many of these prod-ucts do not implement all the commands in SQL: a few known as extensions, that are not in the IBM version.

tional data base.
If a vendor rigorously im-plements SQL in a Cobol ap-plication that is to run with a non-IBM DBMS, there is no reason why that application can't access data in DB2. In-deed, the rapid growth of Or-scie Corp. and Relational Technology, Inc. can be expississed in part by the fact that they are supplying not only relational technology at a time that the market is eager to test it, but also by

the fact that they both em-ploy SQL. In addition to their own viable DBMS, Oracie and Re-lational Technology offer us-ers the chance to practice ing for the day when DB2 is phased in as a production

when the era or distributed data base management dawns, it is conceivable the SQL will provide the stan-dard that allows not only common access to different system.
But why can't the reverse be trust less it possible for independent software house to create DES-compatible products, employing SQL as their data socies language and safely fitting into the IBM mainframe world?
While there would be obstacles to overcome, they vendors' data base manage-ment systems but also access to systems on different brands of hardware. When that day comes, SQL will have earned its status as "a two-edged sword for IBM."

Four facts that every IMS DB/DC user must know:

 DBRC is now required.
 Only DBAid makes DBRC easy to use
 DBAid is the only product of its kind.
 Too can try DBAid for free. DBAid for DBRC is a menu-driven productivity

DBAM for Dense, is a memo-cryven processor in tool which makes it easy to set up, executive, and maintain recovery procedures for IMS data bases. That's quite an improvement, because the product eliminates the need to learn the complex syntactical senecture of up to 44 native DBBC commands. As a result, valuable Data Base Administrator, and Operator time is saved

uses Administrator, and Operator time is saved and aptime is improved. DBAid for DBRC runs under ISPF, is fully in-legated with the ISPF Datalogue Manager, and requires no modifications to ISPF or DBRC

For your 30-day free trial, or for more information, call Alan Kussack today at 212-912-6300.
Or write him at Pinancial Technologies Intervitional, Inc., One World Trade Center, 46th floor, New York, NY 10048.

CALL DATASPHERE

sphere's engine-chading: reputable Power Systems ter Power Centers ter Eye Protection Systems ter Type Ar Conditioning rhows: Diesel Generators remand Centers

BUILDING

A COMPUTER

CENTER?

If you're pleasure p new, expanded or remodeled DP facility, you can Obsoubperts havings combination of services have 1960 Extemplers havings combination of services have delites, frestration and sine for large and until firms around the world.

The services of the serv

800-221-0575 IN NEW JERSEY CALL 201-382-2300

revamp debuts

OAX BROOK, III. — Passophic Systems, Inc. has automated Balance of the Conference of

statements. Gener/ol is available immediately and priced at \$49,000 for OS and \$35,000 for DOS. The SQL/DS interface costs \$7,000; the Adabas interface for DOS is \$7,000 and \$3,500 for OS.

Current Gener/ol users will ceive Release 5.5 free of charge.

CICS developer | CA-Jars/CMS release assists in chargeback

GARDEN CITY, N.Y. — Computer Associates International, line has announced a release of its performance management and job accounting system, CA-I-sra/Cist, for the YM operstaing system environment. Release & Di provides users with a
method for managing and billing the
use of system renounces. The system
use of system renounces. The system
use of system renounces. The system
machine and the use of selected programs, neverties a basis for othersereams, neverties a basis for otherse-

ams, providing a basis for charge-ck, according to Jeff Marinstein, back, according to Jett startisticm, product manager. Added to the CA-Jars/CMS prod-uct is minidisk accounting, on-line budget inquiry and user interfaces, automated report generation and file backup. With the minidisk account-

ing facility, users may account for all VM-related disk use, again permit-ting user chargeback, company offi-cials said.

The on-line budget query facility allows CMS users to access budget in-formation. The information is available for each CMS user, each project and each CMS account. Data can be presented on a week-to-date, month-to-date or year-to-date basis, Com-

user interface for protion. It allows system up or modify charg and data base securit

The automated report gen and file back-up facilities all user to define reports and the the system produce them as cally on a daily, weekly, more

Belease 6,0 includes a new report writer, CA-Jars Wizard, which al-lows a VM user to generate a desired report using English-like commands. The release offers the capability for integrated reporting and charge-back functions with CA-Jars/MVS and CA-Jars/VSE.

Release 6.0 will be available for a one-time license fee of \$15,000 at the end of October.

Disk storage, with an average stillarity growth rate of 40 percent a year, is the fastest growing component of most EM mainframe installations. And, personnel costs to manage disk storage are rising capitily as well. The

ANGA Austramed Stringe Management software many support and ANGA Austramed Stringe Management software neither expensive Stoll growth and allows you to gain content of this valuable most.

The benefits of LSGC software are results appears. A 25 persons into in available DSGC quest Morre commonphase for a new ASGC cost: Morre importantly, ASGC software enables overn to said DASD without adding the common and the common and

Add after improve year ownel dan cares politicisans in a stairing, sacring, hading on an improve pair. ... intermitarly it other is comprehensive on of Dadio insequence took the is you enhance whichied sarrong insequence canadest, and destinate year own contained appear formers. All with improve and caree differing formigh in data recommon foliation. Data distribution of the second of the providence of the proper data data are selected, year of you is now upon to you check that are related you make your law year place you provide that are related you are second make report. What so not, in since both death of big above the coar data to be solved and extended that over them.

Easy to use and administer, ASICI software is recognized by over 800 uses workwide as the stocked in high-performance storage management. That's partly because of the immediate hotton-lane benefits uses sealer by automating storage management, also because ASICI software has been summating storage management, also because ASA constantly enhanced storage in introduction in 1974.

ASIC software helps solve today's storage management problems and And goodiness you to make and manage forum DASD requirements in the

For additional information on ASAC software, contact Shaws Michaest today, at 1353 Lawrence Expressivay, Santa Clara, CA 95091-3595; (405) 961-558, Talest 357457.

ASNC is a trademark of The Cambridge Systems Group "Resed on International Data Corp. study

The Cambridge Systems Group

CICS PC pack rated by tester From page 27

room page 27 months and 27 months and 27 months and 28 mon

screen use. A command-level Cobol preprocessor converts CICS, command-level Cobol programs to a form that can be compiled by Realis Cobol. Finally, a resource definition processor validates and converts CICS system macros to a form suitable for the PC.

ASM2 storage management software. Your bridge to the future.



MANTIS' 1981

"Cincom application tool stashes developmen

NTIS 1982

"MANTIS has paid for itself many times over in programmer productivity and end-user satisfaction."

MANTIS 1983

"Performs like COBOL, with the productivity of a true 4G — and used for all new, on-line development."

MANTIS 1984

"100% of our new on-line development is in MANTIS."

MANTIS 1985

"MANTIS is the international on-line application development standard for General Foods."

MANTIS 1986 The Best Just Got Better.

Proven in over 2,000 user sites, MANTIS, from Cincom, is the premiere fourth generation application development system.

And, now the best is even better. Our major new release of MANTIS gives you even greater performance and productivity.

With MANTIS, you can prototype, refine, test, and release an application for production in a single, interactive session. Compile-free MANTIS applications are tast, and easy to develop and maintain. And MANTIS provides such high performance that many users make it their standard for all on-line applications.

MANTIS portability lets you move applications — without change — from one operating environment to another. From VSE to MVS. From CICS to BMS/DC. Even from one hardware system to another, including BMF, DEC" WAX" WANG VS. "NCA" VXX and others. And MANTES provides support for multiple data structures, such as VSAM, DUI, SQLIPS, SUPPA," and others.

To see just how much better MANTIS really is, compare it to any other system you're using or evaluating. For a demonstration or more information, call the toll-free number below. In Ohio, call 513-661-6000. In Canada, 416-279-4220.

1-800-543-3010.

H.CINCOM

World Headquarters • 2300 Montana Avenue • Cincinnati, Ohio 45211

Wang VS is a registered tradem of Wang Laboratories, Inc. NCS is a projected trademark

for MS OF INSTALLAND

International Business Machines Corpo DEC and VAX are undernated

COMMUNICATIONS



Is a translator in the house?

Assist quells fear of LU6.2

Menu-driven program aids users in application writing

By Elicaboth Horwitt LAGUNA HILLS, Calif. — A me

Seven-channel line trial slated

By Puggy Wett

DANVILLE, Calif. — Following the successful completion earlier this month of a four-month, initial technology text, Pacific Bell will offer its Project Victoris technology, which splits a standard phone line into seven channels, in a market trial to be

Ogy, When, n...

It is seven channels, it is its rise u.e.

The believe it's a missenon," said Michael Eastwood, executive directed for new netwest applications. The Pacific Roll cannology site a single 'I' line curry two data channels and four 1.200 bit/sec. low-speed data channels and four 1.200 bit/sec. low-speed data channels would be seen to be compared to the channel of the company. The technology worked very alequately, 'Eastwood out...

The limital test investigation 200 Dec-Tree limital test investigation 200 Dec-Tree limits 200 De

ty and high-level language interaction for Works are had commanded that are strong toughder to from an APPC program. When he was to the command of the commander of the commander of the commander of the commander of the write programs to talk to CICS on the mandrame, antique in to transfer recommander. While Aminet is not linkely to make 1100.2 Workshop of the commander of the commander of While Aminet is not linkely to make 1100.2 requirements and of banksom some commander of the minimum in large corporations that are ex-minations in large corporations that are commander of the commander of the commander of the minimum of the commander of the commander of the minimum of the commander of the co

Satellite launch problem hangs over private companies

By Stanley Obsers
LAS VEGAS — In the wake of the Res LAS VEGAS — In the wake of the Re-gan administration's August statement that the space shuttle will no longer other ule commercial payloads, private compa-nies and foreign aspencies are exrambling to fill the satellite issueching void. According to Madeline Johnson, direc-tor of commercial space programs for the

tor of commercial space programs for the U.S. Department of Transportation, Mar-tin Marietta Corp.'s Titan rocket, General tin Marietta Corp.'s Titan rocket, General Dynamics Corp.'s Atias Centaur and Tran-space Carriers, Inc.'s Delta all have suc-cessful launch records. These companies, along with entrepreneurial launch compa-nies such as Space Services, Inc. and Amer-

INSIDE vice that allows Evariety of computers/32

NEW THIS

 CXI offers PC0X/5250 Re mote for PC-tominicomputer connections

ANALYSIS "It's difficult for

we're too big and too dominant because we're the only ones to serve certain remote areas. Our competitors chose not to do so, because they found it un-

profitable."

printf("Hello, world\n");

For all the facts—including details or economical annual licensing com-plete with free technical support and enhancements—call your Software Sales Representative today.

Copyright & 1986 in SAN Invitore In. Protect in the USA

SECAUCIS, N.J.— IT World Communications, Inc. recently introduced a conworld Communication, Inc. recently introduced a conallow users of differing conputer systems to send and recovered to the control of the contraction of the contraction of the control of the contraction of the contraction of the contraction of the con
section of the con

sewert-Packard Co.
TIT's announcement is
initiar to a service that
festern Union Corp. has
een providing for the past
ear. In conjuction with a
uniber of third-party softrare vendors, Western
into noffers interfaces to its
saylink public electronic

mail (E-mail) service. Interfaces are available for the face are available for the System (34, 3 and 35 as well as for the Wang VS system (34, 3) and 35 as well as for the Wang VS system and DECVES computers. Certify added support for the IBM Professional Office System and Deterlands Office Sysport System (Decox), in Support System (Decox), in the included the interfaces within its own Engylink service, so users do not have to purchase software packages.

"They all have to move into this area," said Helen Callan, a research associate at Link Resources, Inc. in New York. "Most of us have in-house electronic mail. The next step is to send it to the

next step is to seed it to the outside world." ITT plans to sell the soft-ware directly to users. Resid-ing on a host system, the software reformats an E-mail message so it can be trans-mitted over ITT's telex ser-

computer-readable format.
According to an ITT spokesman, users can send messages to an in-house E-mail system. Users also have the option of sending a traditional that message directly

case Worldbridge software provides support for the IBM 3270 and 3780 protocols, IBM's Systems Network Ar-chisecture, asynchronous and bisynchronous protocols and the X.25 public network

tion. Some were no solutions locompatibility problems recently, we sur-found 76

More recently, we surveyed firms and found 70% recognised a need for document translation. The heightened awareness is primarily due to the increasing number of available prod-

etary min ution paci cost personal computed offerings. The two

st-known products are sinframe-based systems arketed by IBM and Soft ritch, Inc. IBN's DIA/DCA products

de centralised docu-translation and trans M'a communications sys-m, Distributed Office Sup et System (Disoss). DIA ovides nonrevisable docu-nt transmission. DCA pro-les the translation so that serwise incompatible IBM

therwise incompatible IBM roducts can communicate. DIA/DCA enables users of BM products such as Personal Services to send documents and messages to other BM system users without repard for system-to-system compatibility. Users can also use DIA/DCA to send documents are twenty in the computation of the system users to send documents between IBM computations are not other twenty and the system of the syste

protocols.
Digital Equipment Corp.,
Data General Corp. and Hew
lets-Packard Co. are among
those that now support DIA/
DCA formats.

Another available solu-tion is a group of IBM main-frame-based products from

TITE-mail ties variety of systems

**Interpolation | Temporary | Internation |

**Interpolation | Temporary | Temporary |

**Interpolation | Tem

go-between in all document suchaages. Deven an exchaage between the control of th

Finally, there are smaller, stand-alone translator boxes and PC software packages as Keyword Office Technol-ogies, Ltd. and Interpreter, Inc.

Inc.
Keyword recently announced a series of IBM PCcompatible translation pack
ages, each of which, for
\$500, provides translation
between pairs of word pro-

between pairs of word pro-cessing systems.

The next crucial steps to-ward the goal of a universal translator will be the per-fecting of text translation and the development of graphics translation. Another hundle is the development. On the translation of the translation of the translation of the back of the translation of the back of the translation of the translation of the back of the translation of the translation of the behavior communications.

behooves communications managers to educate themselves on their users' document translation needs and to keep abreast of technological development

Assist quells fear of LU6.2 From page 31

"Right now, LUS 2 is caught in a vicious circle, where you need products out there to convince businesses to use it, but you need enough of a market to make it economic forwhere." Rappor said LUS 2 is a far more efficient busis for a micro-lomainframe link than the 20-year-old 2370 protocols, this add. "File transfer is cumbersome with STO, since it must be compared to the compar

on any IBM PC, Personal Computer XT or AT or compatible with 256K bytes of main memory and an IBM PC. DOS 2.0 or later version. To communicate with another computer, the PC also requires a synchronous datalisk control communications adapter and synchronous modem. modem.
LU6.2/Assist costs \$345, and the LU6.2/APPC soft-ware costs \$150.

written for 3270 are incompatible with each other, while applications written for IU.8.2 will work together. Eventually, this will nean that users won't need to incow which bost they are ecessing for their records." Adaptish, U.B.2./Applic and IU.6.2/Amist can be used on any IBM PC, Personal Computer XT for AT or computer XT for



For full details and your closest HYDRA deal



Satellite launches | Seven-channel in short supply

From page 31

can Rocket, Inc., will provide alter-atives to the shuttle.

Johnson spoke at a roundtable dis-ussion of launch issues at the Satel-te Communications Users Confer-nce held recently.

Should the desirators looked.

She said the deministration tooled at the backleg of schoolsted flights on the said that the backleg of schoolsted flights on the said that the backleg of schoolsted flights on the said that the sai

Proton rocket.
However, Robert Brumley, chairman of the commercial space working group of the U.S. Department of Commerce, nixed that notion by stating that the government would severallow a U.S. astellite to be launched from Soviet sail because of technology transfer considerations.

Chinese Long Hendre recise! In contrast, the Chinese Long March rocket, in which Koolier also barriers, according to Brunley, because of China's current Inverteble behaviors, according to Brunley, because of China's current Inverteble behaviors, according to Brunley, because the China's contrast, and the contrast, the China's contrast, and the contrast, and the contrast, and the contrast as human vehicles from the contrast as human vehicles for the contrast, and the contrast, and the contrast, and the contrast, and the contrast as the contrast, and the contrast, and the contrast and the contras

setting 10 states convertion, solid as medium regional benefits and another program benefits and benefit and the solid control solid control profit of the solid control the the solid control the

line trial slated

viter residents, most of them using the Victoria schnology at home, but with residents and the Victoria schnology at home, but you can be seen to be seen

City Council Member Dick McNee

ly said the experiment was "a glimpse of the future" of telecom-munication. "I was my introduction to the kinds of services available with computers and place. It is a with computer and place is a service and the on-line forum, set up for the test, that allowed citizens to poot questions, gripes and suggestions. If fact, the city is considering offering a permanent electronic builderin both or all residence to call.

for all residents to call.

"The technology was very smooth, though we had a kind of rough start," and Steve Lake, a Darville city engineer, who used a Project for the communications didn't work very well on the Manistobh, supposably those that tried to use the Manistobh as a terminal, because of its praphles features. But the control of the comment of the Manistobh and the manistobh of the Man

well, he added. The next trial will invo

The next trial will involve more commercial uses because it will be available as an optional service un-der a temporary, test-period tariff that is still pending. Eastwood said. Customers will use their own com-

source told Computerword it will be held in the Mountain View, Calif., area in January.

"The technology test seems to be the easy part." Eastwood said.

"There's an opportunity for many new types of applications now. We look for Victoria to be an adjunct to the company, a growth job."

Thinkahead.



At Spectragraphics, we've always had a company philosophy of not just thinking, but thinking ahead. It's something to strive for. And it does more than just sound nice in our corporate brochure.

it pays off.

For example, last year we intro-duced the DesignSet 1080," a graph-ics terminal that's compatible with the IBM 5080. As good as it was at the time, the most important feature of the DS 1080 was its potential. A designed-in poten-

ery field uperades. every DS 1080, this year's or last's, So every DS 1000, this years or lasts, can have all the most up-to-date for-tures we have to offer. With complete compatibility and maintainability. Which gives our model a future with-out planned obsolescence.

at planned obsolescence. Unfortunately, that wasn't an opt even to customers of companies who merely think. Customers who are now

mently think. Customers who are now working with out-of-date models that aren't even a year old. In addition to the foresight we have in designing products, Spectragraphics

has the track record, stability and service to back them up. Because we know that those things help just as much in making your system run

noothly. So, all that being said, the decision is up to you. You can think.

Or you can think ahead. With

SPECTRAGRAPHICS
Where your ideas take shape.

paghics Corp., 10060 Screens Valley Rd. San Depp., CA 1699; 450-060.

The single best way to turn your PC-AT into a multi-user system.



Introducing the Wyse WY-60.

Now there's a perfectly compatible, reliable, economical, Wyse way to get multi-user mileage from your PC-AT. Wyse WY-60 terminals give you complete compatibility for your IBM Personal Computer AT systems, right down to the exact keyboard layout, character set and display features. The only thing different is how

much cleaner and more readable your information is with the WY-60's high resolution and flat, non-plare, 14" tilt/ swivel screen.

Multiple display formats go up to 132 columns and 44 lines on one screen, to get the most out of applications such as Multiplan and

And a 512-character downloadable soft font is also there when you need mathematical symbols or customized character sets

The adjustable arm is optional, and you can choose a green, white or amber screen.

No wonder we ship more terminals than anybody but IBM.*

Call toll-free or write, today, for more information. Wyse Technology, Attn: Marcom Department 60-AT, 3571 N. First St., San Jose, California 95134.

Call 1-800-GET-WYSE

VOU NEVER REGRET A WYSE DECISION

Opening up Pandora's box

AI languages for Mac, IBM PC, VAX introduced

y Poggy Wett SANTA BARBARA, Calif. — Exp

Name of the Control o

Televideo offers

enhanced LAN

EW THIS WEEK

CMS offers 8 page/min laser printer

· AT&T intro-

duces Targa 8

graphics board

INSTANT ANALYSIS "Anybody who announces a 386 PC at this junc-

aged with a tutertal manual, according to Experimingnous.

Experimingnous in the mid-range Prology product, positioned between Borizand Far-ternational, Inc. 1 recently released Far-ternational, Inc. 1 recently released fur-treased for the property of the pro-tein of the property of the pro-late property from Arty Corp.

There and its bringing to the world what Its, "Remains such." Its more of an over-sion application." He added that Exper-sions application." He added that Exper-sions application." He added that Exper-sions are proposed from ATI in Commission of Paris, in the U.S. early accident

ear. The two products join an existing Ex-ertelligence product line that includes rologo, a Projeg indespreter written in ogo, a separate Logo implementation, Ex-erlisp, a LISP interpreter, two expert sys-wers and a file transfer system.

makes its move should have their head examined.
— Marty Grevies preside
of The Sterra Gre
on Compan Compa
Corp. 's Designs:

First CD-ROM disk produced to High Sierra standards

Oracle's SOL*Calc makes a relational DBMS as easy as 1-2-3. SQL*Celc is easy to learn because its menu and command structure are compatible with those of Lotus 1-2-3. And SQL*Celc's ORACLE DBMS requires no

we you to put SQL de mande into spreadshe formules. This permit

1-23 And SQL#Calcis ORACLE DBMS requires no supplement: It is warfy more powerful than the detabase components of 1-23. Symphony, Framework, dBase III, dBase III, or any other PC DBMS. SQL#Calc is evaliable immediately for IBM PC/ XTs and ATs for \$995.* SQL#Calc will soon be multiple and ATs for \$995.* SQL#Calc will soon be

Att and ATt for \$995.* SQL#Calc will soon be evaluable on swide veniety of systems, including [BM naturhames, DEC, DG, and other superminis, and most UNIX systems. For further information, or to order your copy of SQL#Calc, call 1-800-345-DBMS. Or write Oracle Copposition, Dept. CS, 20 Derts Drive, Belmont, CA

Opening up Pandora's box

today about "only" 6 as of memory or 33M as that can be format a hard disk in a single

ical.

The great white whale in microcomputing is a windowed, multitanking operating system—one that will let the user do five or six things concurrently, stashing each task in a separate part of the screen. Microsof was a separate of the screen. Microsof was a separate of the screen.

All this panting after mu-itasking is a little bit amus-ag. There's already a small-ystem, multitasking perating system in wide se. It's called Unix, and sektop minis that run it a st as rure as Compaq mig

not as rare as Compaq magne have you believe. Of course, MS-DOS users have heard about Unix. They've heard it's too big, that it eats memory, that it's user hostile and that only a tachnocrat could love it. But

hat it eats amoney, that it's eats entered and the only a seriouslis and the only a seriouslis and the only a set 5000 seers generally fail at 18500 seers generally fail or of the fail o

Series/1

uct of AT&T; no one can write a version of it without AT&T's permission. MS-DOS

to give AT&T the keys empire. In fact, IBM is no about as far as it

Does that mean Unix is ing to just fade away in face of Compaq and Mi-soft? The number of Unix

ope, it is em of

top price will indeed make it possible to bypass the MIS shop in many cases. Soly a many cases who is many cases. The many case was a many case who is many cases who is many cases and it is to be proposed in the backpro 388 will force the industry to face. Just exactly who is running the show? The large group of a show? The large group of or the administrators with their Unix. Yell and MYS?

An IBM Color Display.

It can really boost an operator's efficiency. That's what REJIS found out. REJIS is the Regional Justice Information Service in St. Louis.

This information service is a trendsetting, government criminal justice network linking 120 different agencies to a central computer.

REJIS quietly initiated a pilot program using IBM 3179 Color Displays. The units were tested under everyday conditions. Default colors were used, so no software changes had to be made. The quiet test turned into a smashing success. End users were amazed to see

how data popped and how mistakes

ICROCOMPUTERS

CD-ROM meets specs

From page 35

"This is the first time that 3M has mastered a disk to that proposed standard," said Mike Befeler, director of strategic marketing for Ref-

chanology.

jor microcomputers, the mar-ket has not taken off became of the lack of an Industry-widerkandard file format. Post is proposed to the Post is proposed to the there is not enough momentum. The question is wea-tum. The question is we-taut. The question is we-taut in the control of the con-trol of of the con-trol

avies, the

available on CD-ROM

Also, although CD-ROM disks can held up to roughly 550M bytes of data, once the disk is formatted and filled

"It is like publishing a book," Befeler explained Ac-cording to Davies, erasable CD-BOM disks will not be in widespread use until 1990. The proposed standard

was announced at the June National Computer Conven-

National Computer Conven-tion in Las Vegas.

The High Sierra proposal calls for a defined volume to-ble of contents and directory structure for CD-BOM disks. Such a structure would al-low the CD-BOM data to be read on a variety of systems, including CD-ROM players

"It is a de facto standare because all of the major play

ers are conforming to it," Be-feler said.

The disk prepared by Ref-erence Technology contains data from the U.S. Depart-ment of Commerce." Coms from the U.S. Department of Commerce's Census was and includes 1980 de-traphic census data for all es on well on

stistics.
In addition to 3M and mence Technology, the Herra Group includes Digital and Miral Mir

Televideo LAN out

From page 35

Netware, an OEM version of Novell, Inc.'s Advanced Netware, using a star topol-ogy that gives each worksta-tion a direct connection to the server. Linking servers of several LANs allows those clusters to communicate and share files, according to Na-

The software enhance-ments, including bridge capa-bilities, will be available in October, with a discount for October, with a discount for cristing customers. Naka-shima said. Televideo ex-pects the primary buyers to be existing customers who want to tie together their clusters of LANs. Although individual work groups may be linked on their own LAN, they non-theless may occasionally

theless may occasionally need to share data with other work groups that have their own cluster, he added.

The Personal Mini server, which is built around dual Intel Corp. 80186 and Z-80 microprocessors, has been on the market for more than two years. IBM Personal Comput-ers or compatible worksta-tions can become nodes on the Personal Mini network with a connection of RS-422 cable and a \$199, half-slot

cable and a \$190, half-soc network adapter card. The PM/Netware software includes a multiuser file sys-tem, record and file locking, four levels of data security and prisit security. PM/ Netware 2.0 supports appli-Netware 2.0 supports appli-cation programs developed for Microsoft Corp.'s MS-DOS 3.1 and IBM's Netblos. Hard disks and tape backup sys-tems are also available.

INFORMIX

- INFORMIX SQL Applications Design
- Programming

 Training DEFinitive System 301-721-7691

IBM marketing representative.

ere easier to catch.

Soon, REJIS end users everywhere wanted IBM 3179 Color Displays. The result — IBM color displays are now being placed throughout the REJIS network.

Whether you have a small departmental system or a large computer, there's a range of IBM color displays

and color graphic displays that could help enhance your network's

For your free demonstration diskette, "Why Color," call 1800 IBM-2468, Ext. BT/90. Or contact your

WHEN SUCCESS IS YOUR ONLY ALTERNATIVE... CHOOSE THE COMPANY THAT ENGINEERS IT:

The above of a corporation is increasingly dependent of the above to eatify the growing demands for accurate and timely information.

To course secretarial information.

Software All proceeds a gueen that is both powerful and efficient, they integrated, yet open in anchiefchure, openable in maritial regimenments, yet housed on a countries annuals.

a system that provides a single info insting fundation that drives all you out may solution, and gives you the flembility to grow and change over time.

Software AG purports this system with an outstanding army of custome services and support terms, includin Conton Solutions, Professional Services, Contoner Education, and

from a day.

Ne'ro the descriptor of ADMAS,
NEUTRAL, PREDICT, and more than
35 other fully integrated products, all
upliquely designed to deliver fromprebenesies solutions for twellstation.

remanufactions, applications dem ment, end-user information system and information management. So choose the talent and technology



INSIDE

Ford's rocky road auto maker switches from proprietary net to national standard/40

Towing the line: An intorview with Navistar nternational's Ben Hilbrandt/55

Third-party EDI ser-vice: Reaping the benefits without risking security/56

Software vendors scurry to offer users cheap alternatives to custom systems/62

Electronic Data Interchange

Standard's momentum grows as users realize benefits

RY JOANNE KELLEHER

Two years ago, only a few of Jim Bridges' customers had ever heard of Electronic Data Inter-change (EDI). "Now" asys Bridges, director of ISB at Unitate Enterprised Services, h.e., a large that the property of the property of are getting calls every other week about it." EDI is the direct electronic transmission of standard business forms such as invoices, pur-hase orders and shipping notices. Its growing popularity among impilers and buyers in due to NSI X.E. (22, and the everbowment of relatively and the property of the property of the con-traction of the property of the property of the total contract of the property of property

If that projection is correct, MIS
and DP executives have only a short
time to rehearse a new role.
According to Victor S. Wheatman, or consultant with the Mountain, Calif.-based market research firm input, as recently as one year ago information systems personnel exhibited a very low knowledge level about EDI and what its implementa-

cally equipped to respond to s, although they may be the

When an industry discovers EDI's benefits - reduced paper handling costs, error elimination and lowered inventory requirements - it pushes sup-

pliers to adopt the technology.

EDI use grows as benefits emerge

mers."
It is also a technology that many usalysts foresee as having great strains, particularly as new transaction plications are developed that will ipartments of the company and dra

which produced the much-needed transmission control, transaction florant and contents at a control, transaction florant and contents at a time and the second of the second of the second at loan have morred to cast their leds with a 12. I standard. There must be 30 industry now either planning or already beginning to an experimental to the second of the second of the forest of retail standards and exhaustic the Nazional Betail Merchanta Association. The NEBAL instantial parametals based on the second of the second of the second mental of the second of the second of the mental of the second of the second of the mental of the second of the

rs. parate groups in the apparel and textile ren are also working toward the develop beets of the X.12 EDI standard that will make not only ordering and billing but al ransmission of fabric specifications. coording to Bob Canis, manager of custom munications at LTV Steel Co. in Clevelan munications at LTV Steel Co. in Clevelan

Due to its avid interest in just-in-time manu-been a major catalyst in the recent pash toward widespread adoption of EDI, according to Canis, widespread adoption of EDI, according to Canis, team for the Automotive Industry Action Group (AIAG), a coalition of auto makers and suppliers formed in 1981 to deviance industry productivity Of all of the trade groups involved in EDI standardization of forts— a list that now include



bestimed from previous pages on cody) that transportation industry and retailers but also the metals, electrical, chemical, genery and office products industries — the automative industry has both the wident realmost transportation. The state maker, which have been requiring peoples transportations one of their major empiries to communicate with them electronically for up to 15 years, are the common of the major of the common transportation of the control of the previous throughout their entire uncoller base for transportant throughout their entire uncoller base for transportant controls and

The process of the control of the co

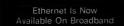
m a headache.
"We're starting to convert to the standard
mat," Rockwell's Zeiinski says, "but what
have had until now are more than 100

4."
Although LTV Steel got off relatively easily comparison, with only 15 to 20 individual muscications links to maintain, Canis says expense was hardly minor. "I wouldn't be to put a dollar figure on it," he says, "but we it was quittee only in terms of both gramming time and the purchase of compu

propraising time and the pursuers and mention:
Until the emergence of a broadly accepted standard and the development of a software and services market to support it, even companies that were totally convinced of the merits of EDI for reducing both the clerical work too of EDI for reducing both the clerical work too of EDI for reducing both the clerical work too.

Ford Motor Co., for example, has already resented the case for EDI to more than 100 of a non-auto parts suppliers — an eclectic as-ortment of businesses, from drill bit manufacrement of businesses, rross on a service remains to paper clip vendors (see story previous). Thirty are now full participants in Continued on page





WHERE PERSON

For more information on how you can realize the benefits of Ethernet on Broad

 Five Irequency ranges to avoid conflicts will service such as MAP Syste's Locathiel 20 ISM's PC-MIT and others. + 5.500 Meters coverage or over 9 1 sq miles

 Controvector addressed by dust port and 8 port models
 Dust in digital and RF degreesion. Transparent to higher level National Soft wave DECode, TCPNE and XNS.

CHIPCOM

ONCE THERE TRANSFER.

OW THERE'S IDM.

and DataMover® INDMI doesn't just move files. It's the wanced data transfer management system available for the M SNA mainframe environment.

NDM makes yesterday's file transfer systems obsole with powerful data handling capabilities. NDM main-tains data security. Automates operations. And

continuously monitors data transfer activity.

Once there was file transfer. Now there's a system-wide solution to managing data movement through your net-work. Now there's NDM.







And it has fix power, with 5 years fix hermal strange size to a scorrodate two 12 MB loggies, two 60 MB set dides, and a spee back up allowing you the fixedbirthy to size of the AFC IV to you can strange registering. Plan, the AFC IV has the power of ME Chedrid I. The 510 MB limit insider in completes and commenciations. So you never have to very global support to expect the strange of the scorrodate of the AFC IV to you will be supported by the scorrodate of the AFC IV to the scorrodate of the AFC IV to the ST IV to th

Take it to the limit. NEC

DATA GENERAL ASKS: WHAT WILL YOUR OFFICE SYSTEMS COST YOU DOWN THE ROAD?

OUR CEO® BUSINESS AUTOMATION SOLUTIONS GIVE YOU THE LOWEST COST OF OWNERSHIP

Bysas the high cost of other companies office automation systems. With Data General's line of suly compatible compaties. The industry leaders in productivity. Our new MY/20000" provides superior price/perfor-mance. Better than DEC's WIN" or BBM*'s 4000 series. While our MY/20000C" sets the standards for dropart-mental computing systems. We take you beyond office automation. By integratin

© 1995, Date General Corporation, Westborn, Mr. 500 2000, Mr. 20000C are inchessive, and CED in a registered residence of the

thirth to influency materials in CURRENT-Markov and data management.

R all adds up to advanced Business Automation solutions. To give you the lowest cost of covenerably. All of which makes Data General the best rouse to the For inone information, coll H000-B00/C00 (in Canada call H00-265-556), Or wine Jban General, 4400 Computer Dirbs, MS C220, Westboon, MA 05500

Data General
a Generation ahead.

Ford clearly alma for a papertees makes will cut invested yields from the sense will cut invested yields from the sense will cut invested yields from the sense will cut invested yields and an additional sense of the sense of t

he banking industry repre-sents a recent and major con-rert to the ANSI X.12 format. After rannouncing its own Corporate Trade Payments format for paperiess cash Payments format for papertees cal-transfers between businesses in 1894, the National Automated Clear-inghouse Association bowed to man-new X.12-compatible standard called Corporate Trade Exchange (CTL). CTX, which is expected to be 1.957, will do more than just marry two incompatible standards, accord-ting to James Below, vice-precident at Chase Manhattan Bank 1A. In New tion resources within rounspection.

rk; it will also channel informa-or resources within companies re efficiently. "Until now," he isms, "people in the treasury de-rument have been doing one thing, ile the people in order entry do

ment officer for electronic ts at the First National Bank syments at the Piett National Bank Chicago, elimination of such du-location is exactly what the next age of EDI development is all sout. "What is happening now," as refugle to King, who has been war-reding to King, who has been war-reding to King, who has been war-reding to King, who has been war-ter transaction are, "is that EDI ansactions are being developed at don't just replace paper docu-ents, but actually streamline the sizes of consess by consolidating in

formation."

In the payment process, for exam-ple, King says that invoicing may, in many instances, prove unnecessary.

It may be possible to eliminate that incument and build a payment file in the basis of other information pleady mendued."

s the basis of other information ready received. It was in order to not inch possition of the property of the control of the suppliers articipation. Specifically, the basis of the property of the control of the suppliers articipation. Specifically, the basis of the property of the prop

and all transmissions."

When the plot plot phase own this
When the plot phase own this
will start picking up their own this
including purchase of the software
at all the plot plot plot plot plot
at all the plot plot plot plot
at all the plot plot plot
at all the plot
at a plot
a

arry & Sewall adopted EDI 15 the ago, primarily to retain the ness of a single large customer, ington Northern Railroad Co. Since the services of a network were not necessary to consect with a customer across town, says DP director Serven Dison, the only expenses pater Corp. microcompater and a \$6,000 version of Program Science's X-Change EDI processor software. The Description of the Description of

appliers, Olson does not articipal necessaring the traffic or distance at will force him to consider a near hast suits him just fine, he says, cause he would rather not commisself to that choice just yet. "My major reservation," Olson e lains, "is simply that a network allow service adds another vari-sle into the elituation. Bight now, mer are only two parties that rear

able into the situation. Right now, there are only two parties that can screw up — me or my customer. As another one and you are just incret ing the danger of something going wrong." For much the same reason Oison has also chosen not to try to interface the EDI system with any

Announcing the Network Premiere of 24/24.

24/24 From Digital Communications Associates, Inc. It's easily the

most exciting support program ever offered by

طحم

any network. And it's the first of its kind ever to offer living proof of network reliability

Because 24/24 is 24 months of remote network support, with a maximum 24-hour turnaround on parts. On any DCA-manufactured data

communications network that we install and maintain-large or small. And best of all, it's free. For details, call:

1-800-241-4762, ext. 504. Or write: DCA, 1000 Alderman Drive,

Alpharetta, GA 30201. But 24/24 isn't all you'll be seeing

on the DCA Network. So stay tuned.

DCA.The Network Everyone Will Be Watching.

"Just name a company, and we probably heard from them .thanks to our ad in Computerworld."





How did Pansophic Systems, Inc. turn a tee shirt offer into a highly successful and profit-able advertising campaign?

records.

SyPE directors and manageis bron large and small commiss about GENER/CL. Its
eractive application develment system for CCS. So the
empany ran a testimonial ad
Computerworld and offered
free Your System Int Teach
costs. Its efficiency of the
ment of the Computerworld and offered
free Your System Int Teach
costs. Its efficiency of the
ment of the Ble of MS/DP
medic or manager
medic or manager
medic or manager

The tee shirts were used as entries to first calls, hand del ered by Paracophic salespeo-ple. And a great number of



shifts were delivered. "He got responses from the high-level people that we weren't able to reach before, and these peo-ple were interested in more than just less shift." Tecolis Jock Lesbeck, Dercotr of Marketing for Parsophic. "They were also interested in learning how GD/BE/CII, can gave them more or the last white remusely.

And responses are still coming in. "Responses have come from companies of every size. In tact, just name a company, and we probably heard tro them," says Jack "We're now running only in Computerworld and we're ex-



explains. Prior to this cam-poign, when Jack would ask his sales people for prospective publications in which to adver-tise, three or four publications were generally listed.

"Now the answer to that ques-tion is. I don't care where else, but make sure we're in Computerworld."

Computerworld. We're helping more suppliers reach more buyers more office in the computer community. We cover the entire computer world. Every week. We deliver the news. the analysis and the

Call your Computerworld representative for all the tacts. Or call Ed Marecki, Vice President/Sales, at (617) 879-0700.





The National Connectivity Symposium On Local Area Networks & Micro-Mainframe Links

Washington, D.C., December 8-11

CONNECTIVITY SYMPOSIUM AIMS

The full interconnection of information processing resources is becoming a core component of an organization's overall strategy. In virtually every organization, connectivity is achieved through an integration of multiple products and multiple technologies. Identifying and categorizing your options for a particular problem can be a time-consuming and frustrating process. However, it stand emerging standards and choose

the right products for close examination. The National Connectivity Symposium is the only conference where you can review LAN and link technologies and products, meet face-to-face with the vendors whose products you need to evaluate, discuss solutions with other MIS leaders, and discover new products for con sideration. This conference will give you the knowledge to inst the right network six months earlier.

ONE HOUR PRODUCT EVALUATION SESSIONS WILL BE HELD ON EACH OF THE FOLLOWING:

LAN RELATED PRODUCTS 3Cors 3+ Network UniLAN Ouednet IX Ouednet VI Asher Technologies

AST Resource Sharing Network AST Network Program AST Link Products with Clusters AST Research Virtual Networking System

Omninet, PC/NOS DECiset-DOS

LANalyser EX SIGGE Fox Research 10-NET PACKNET way Com CONTTIAN. wiett Packard HP AdvanceNet family of products BM Corporation NBL Inc

NSI Net, Multinet
PLAN series network products
SNA server family
PLSION Network Software Nestar Systems, Inc.

Syrek, Inc. Sestem 2000 3000 6000 DBC/1012 Wollongong Group

Applied Data Res CQ Inc. **Cullinet Soltware** Digital Communic Information Builders emation Technologies, Inc. latel Comoration Lee Data/Datastee

Martin Marietta Data Sentema

McCormack & Dodge Micro Decisionware Micro Tempus Network Software Associates On-Line Software International

Software AG of North America

om Systems Corpo VM Personal Computing MARK IN

PC/DADACOM, PC/EDEAL

PCCK Galeway Products PCCK Countil & Remote

10%, Goldengate, Infogra BC BOOK SAME OF BOOK IN Linklin See

FASTPATH Micro-maintraine Links 3270 Gateway Issues The Application Connection RAMLINK VIRTUALING LINET DC Lock

PC/SOL-Link TEMPUS-LINK Adaptina RIE OMNUNK FREE-LINK sedKTH, pcFKTH

NATURAL CONNECTION Relay/Gold, Relay/VM The XYPLEX System

The National Connectivity Symposium On Local Area Networks & Micro-Mainframe Links Washington, D.C., December 8-11, 1986

Market research organ termendous growth of local area network systems and microstandard, Lti 62, and APPC' How can DP professionals and users meinframe link products. According to some industry surveys, the connectivity equipment market has increased by 150% over the past IS months and is expected to continue growing at a rate of 50% per year through this decade. As a result, MIS and communications in

today face a bewildening array of options for networking their micros and minis and linking PCs to the corporate mainframe How can managers select the night LAN for their current applications. and future business requirements? How can managers differentiate between the wide range of functionality in MMLs? What are the standards and technologies emerging today that may affect a networking system

ors building syst effectively research and explicate the bundreds of products available and make the best possible choice for their environments The National Connection's Symposium on Local Area Networks and Micro-Mainframe Links has been developed to educate prolession on LANs, links, and related technologies and to provide a forum for

a one-day educational seminar with three days of hour-long, vendor presentations that enable attendees to make inforfied product decisions.

DAY ONE: SEMINAR OVERVIEW OF CONNECTIVITY ISSUES, TRENDS, AND STANDARDS RELATING TO LOCAL AREA NETWORKS AND MICRO-MAINFRAME LINKS

MORNING SESSION (8:30-12:30) AFTERNOON SESSION (1:30-5:30)

w of Cors

- How the Technology
 Evolved to its Current
 - a. History & Evolution b. Current Technology & Terminology c. Framework for
 - Discussion
 - b. Simple File Transfer c. Extract Only
 - d Open Link e Extract Link
 - Vendor Integrated
- Application

- Practical Impi tion Consider of File Transfer in the
 - IBM 3270 World h Bretomone Arneste of File Transfer in the
 - Async Terminal World c. Implications of End User Access to Pro-
 - duction Date d Implications of End User Access to
 - "Standard" Corporate Extracts e Issues in Data Trans
 - lormation I. Issues in Storing PC

- - . Peer-to-Peer Protocols a LU 6 2 b. OSI c. TCP/IP
 - 2. File Servers and Date base Machines 3. High Speed Inter-
 - Channel Products
 - d. Swellite I FDDI
 - 5. Emerging Issues

FACULTY



Larry DeBoever is an independent consultant in data communications, bost software and technology acquisition. He has served as Strategic Planning Director for Ungermann-Bass, and was president of Linkwer (recently acquired Ungermann-Bass) He was founder of Pansophic/Christensen Systems and was pre-viously a Vice President of Computer Cor-

position of America



b. Media

Techniques

2. Review of Switched Based Technology a Voce Data integration

a. 802.2 b. 802.3 802.4 802.5

c. OSI, MAP, TOP

Wide Area Net-ing and LANs
 Network Impies

d. File Servers

b. Data PEX

3. Standards

Roy Pepper is currently an independent con-sultant with over 23 years expension in the cations field. He has held senior executive positions at Ungermann-Bass, B.C. lephone, Consulter and Impact Information Systems Ltd. In addition, he has coauthored Broadband and Baseband Systems Design, a technical publication on LAN design coloria.

Days 2, 3, 4: Product Presentations

PRODUCT PRESENTATIONS

The National Connectivity Symposium is a unique way to analyze the dozens of Micro-Mainframe Link (MML) and LAN products available. You can compare and contrast products while each is still fresh in your mind, and DCAI's experts are available to assist you in your analysis. On Day One the seminar leaders will present a classification system for the various products, which will help you effectively allocate your time among the presentations.

We are fortunate to have fifty leading vendors presenting their products. These companies will make detailed, functional one-hour presentations and be available to discuss their products with you. Each company appearing at the Symposium has provided us with a concise description of the products they plan to present. These descriptions appear on pages 3-5 of this brochure. To get the most out of the product presentations you should spend a few minutes reviewing the participating companies and the products they will discuss.

LOCAL AREA NETWORKS Local Area Networks (LANs) cover an enormous range of technologies. Is the appropriate media baseband, broadband, fiber, or twisted pair? Or is a combination of these technologies the right solution? Is the primary purpose of the network terminal-switching or resource-sharing? What file server solutions are appropriate? Products from each of these areas will be discussed in detail at the Connectivity Symposium. Nowhere else will you find a comparable gathering of the major LAN vendors.

LOCAL AREA NETWORK PRESENTERS

XTM will present to 3+ provers notice for local area and wide-area personal computer networks.
The system, designed for workgroups of 2-200 people, provides interconnection of separate Ethernet and Token Ring networks (interies working located assorbers in the world dialon working) located anywhere in the working class in access to these same networks by remote personal computers, electronic mail within and across networks, and a wide vanety of

PLITEX CORPORATION
The Appliets Corporation provides facility wide communication solutions using local area networkschoolings UnitAN acceptomies stead-and non-blocking invertices that operation at 10 Meps on baseband, broadband and fifter oper cable Applied products include a surrey of terminal and hou-to-host connections, pro-

tocol converting galeways and high speed budges that are managed by a sophisticated Nework Management System

ASHER TECHNOLOGIES, INC. Agher Technologies, Inc. desagns, manufacture Quadret IX is the top of the line LAN syst linking from 210 an unlimited number of PC er to a me top or the time Don system from 2 to an unfirmfied number of PCs or tables and provides "state of the art" is PC information exchange and resource

Studies VI is a midrange LAN which provides multiple PC information sharing. The Ashernet Server provides the hard disk. ne the most demanding

AST RESEARCH, INC.
AST RESEARCH, INC. develops and markets products which enhance personal computing. AST Local Area Network products offer a variety of cabling schemes and provide tall IBN Nethos compatibility AST Micro-to-Minacomputer and Micro-to-Mainlanne link products, ofter tall S2SI. and 327X terminal emulation for PC-based access to IBM S3X Mim-computers and IBM

ayan's Vatual Networking Systems (VINES) Batyan's Virtual Networking Systems (VINES; architecture and family of products, the Batyan's BNS, Banson DTS, VINES 286 offer complete. while communications for the integration of personal computers in a comprehensive com-puting network. VINES integrates a broad, multivendor mix of PCs. local area networks, and host computers so users can pick the right computer resource for the attuation. Buryan's product family addresses the full mage of

REDGE COMMUNICATIONS Bridge Communications is a leading suporings contains an annual perpent local area network systems. The company will person an overnew of its Ethernet, Token-rang and Broadbard local area network systems. Bridge's broad lase of controvarious servers, galeway servers. PC interfaces, and radio frequency (RF) products mable at organization to capitalize on its entire equipment base—allowing a wide range of

Consus provides a cost-effective network solu-tion that includes PC, AT workstations, life evers, a cabling system, network interface eds, and two network operating systems. setworks and over 250,000 nodes. PC NOS, to be released in early 87, will be our answer for the rest of the 60's it is a Nessage-Based Distributed Network System that allows any

communications solutions vendor. DEGconnect provides a simple, elegant, and cost-effective cabling system that brings high-performance Etherner and enhanced serninal interconnection Ethemer and enhanced sentinal inserconnection to office and work areas. DECnet-DOS allows the IBM PC, PC XT, and Personal Computer AT systems to participate as non-routing (end) nodes in DECnet and Ethernet computer networks

Excelan, Inc 15 a leading LAN com-

develops and manufactures advanced hardware, software, and network analysers. Excelan will present at high-performance Etherner-based networking solution for the DEC, UNIX, and PC worlds. In addition, Excelan will also present LAN adminstrators, and field sensor engos

FOX RESEARCH, INC. Fox Research, Inc., is a communications con pury, providing solutions for corporair America from the departmental level to the corporate environment. The Fox 10-NET LAN runs on IBM PCs XTs, and ATs, DX6 2 X 3 X Fee offers SNA mt and RS-202 Gatmanys. Connection to 1876

Days 2, 3, 4: Product Presentations

LOCAL AREA NETWORK PRESENTERS

GANDALF DATA idail is a leading worldwide supplier of

Gandal is a leading workhode supplier of neworking systems, multipliesums, and moderns which optimize the collection and distribution of electrosic information. Gardall will present 19x3/NET. Provide Automatic Computer elichunge, a software-based high speed distribution feri-working system that interconnects a diversaly working system that interconnects a diversaly and brands of computer and commu GATEWAY COMMENSCATIONS

Garway Communications Inc. is a two-year-old company specializing at the development of insovative communications and detworking products for IBM PCs, XTs, XTs and compatibles.

Gaseway's product line includes the high per-formance, low cost G/NET PLLIS LAN, the formation, now cons Urings PULIS soon, son G. SNAser LAN-to-mainframe SNA gateway, the G. (25set Wide Area Network (WAN) gateway, as well as an asynchrotrous gateway (G. ASINC) and several industry standard network file server systems (including NETBICS and NetWare).

HEWLETT-PACKARD
Hewlett-Packard is a supplier of a full line of PRIVATE TA JOHN IN IN TORSING THE STATE OF T

Among NBI's solutions to problems of office

Among NBE's solutions to problems of office automation connectivity are NBE Net and Malice. NBE Net, compatible with Ethernet, binks large departmental systems; using 2270, VTIOI of DISCOSS Mainteet copiects up to 64 NBE work-station and IBM-compatible PCS intrough NBE's Olays 64 series of cluster controllers.

Nessus Systems, Inc. is a manufacturer of Per-sonal Computer Local Area Network Hardware and Software. Domestic sales are "direct" to Fortune 900 end-users. Rottage 300 each users. Products leatured are high capacity life-servers. (159 Mbytes to 1.2 Gbytes) for Arcset, PC LAN Systems and IBM Token-Ring Networks.

NETLINK
Northis SNA Senses passeds SNA gateway, con-centration, and communication transport func-tions for enhanced SNA conventing applications. The Northis SNA decrees (e.g., SSC 3278, 3798, asynch, PCs.) The Northis SNA Northis SNA decrees (e.g., SSC 3278, 3798, asynch, PCs.) The Northis SNA Northis SNA decrees (e.g., SSC 3278, 3798, asynch, PCs.) The Northis SNA Northis SNA decrees (e.g., SSC 3278, 3798, asynch, PCs.) Hub is a communications concentiate and galeway for establishments with multiple SNA devices. Cost-saving applications for banking. gateway for establishments with multiple SNA devices. Cost-saving applications for banking insurance, and DP services companies will be

TWORK RESEARCH CORPORATION Network Research Corporation will demonstrate Fusion Network Software, a software program that provides connectivity in a heterogene-environment of processors, operating syste-protocols, and network hardware. PCs us

MS-DCS and Xenz will be used for the demon-scrators. PNS capabilities and its various oper-ating system and hardware options will be NOVELL Novell sells a lamify of local-area network

novel sets a family of local-area network products for microcomputers that includes Advanced Netware the leading network operating overm Novell's persecution will show how a network operating system's design car weld superior fireshilty. Junctionality, and formance. Topics to be covered include starts security protected mode operations

SOFTWARE RESEARCH CORPORATION Software Research Corporation, located in Nanck, Massachusetts provides freework soft-ware products and services to major F1000

corporations. SRC's Strategic Network Environment software allows users of IBM MVS and VM/CMS maintrames, DEC VAX and WANG V5 minicomputi IBM PCs, and various electronic mail packar

to freely exchange files documents and mail Sytek designs manufactures, markets an

ports general purpose, open access broadband local area networks for large computer-using organizations. Sylet products include System 2000 for immunal-to-host communications. System 6000 for PC networks and System 3000 - 3000 for immunal-to-host communications.

Tendata Corporation manufactures and markets the DBC 1802 Data Base Computer system, an integrated hardware software parallel proces-

sucquants instituted streams paraset processing system for large inflormation—interested business applications.

The DBC 1012 integrates multiple manifoliames, missa, LANS, etc. numing a minima of operating systems, permitting from to share one relational Data Base through a common SQL user lang Ungermann-Bass, Inc., the largest supplier of

Ungermane Bank Inc., the largest supplier of general jumpor botal area networking products, manufactures, sels, smalls, and services verichts and pendent LAN jumpsens words when U-D will challing the IATO becomes Conspection, it, in challing the IATO becomes Conspection, in challing the IATO becomes for consumment to com-municate beetly with IBM, DEC and other host applications programs. Microsoft Networks-based lies and prior servers and PC applications van the Net Ottom between the PC of the IATO and the Networks-

THE WOLLDWOONG GROUP, INC.
WITS (Wildingung lasguard Networking Solitons) provide geon symmis restronency capabiletes. Based on the TUP IP protectle (fee U.S.
provincia). With capabilities the languard wild protection of the TUP IP protectle (fee U.S.
protectles). With capabilities allowed the languard wild be protectled. With capabilities are removing growding a growth path as a removing growth path as a remove a growth path as a remove a rem

Sorry lella, we just aren't compa MICRO-MAINFRAME LINK PRESEN

PPIED DATA RESEARCH Applied Data Research, Inc. will present an overview of distributed processing using ADR's information Distributions System and Distributed Data Base products for data flow and data management. Two specific products will be discussed. ADR: PC DATACOM and ADR: PC

DEAL, with emphasis on the significance of mielligent connectivity between maintraine and PC software ATTACHMATE FTACHMATE.

Allachmateproduces high function, IBM-compai-ble micro-entantiane consentions. Topics will come Allachmate's \$200-PC Emplator, Systems for erous, SULC and LAM-matched PC's thesis to \$270 Enghies, multiple sessors and the \$270-PC Application Program Interface (AP) will also be discussed. A question and answer neared will follower.

period will follow

COMMUNICATIONS RESEARCH GROUP BLAST is a termly of communication on software providing a generic contrastaction in lat among the communication of the communication in lateral 120 weekers and across 25 different operating systems. BLAST can be destibuted to congruise FL uses worthwise for enou-free dust traulier to central mains our maintenance of LANO, or BLAST can be embedded transparently and applications authorize for a unremail communication for lateral and/or and the communication of the communication o CULLINET SOFTWARE

ALLIVET SOFTWARE
Califort manufactures disabase, application
and communications software for IBM manfinancian of Populacity software for IBM manfinancian of Populacity software for bromess
uson. They will present their Information Center
Management System, Coldengale and Inforpate,
These products combine to provide an application level pronocid that transparently comerciaasy PC on misrecomputer user to production disawithout compressing MS croades.

CXI. INC. CX. Inc... 78to Alia. California, is a leading marri-lacture of 3270 and 5250 nicro-to-maintenant and process in the compatible to access and process information location of 1850 marri-ference or System-3a mirricomputers. CXI will provide an incontinuo of laccostata and remote 3270 and 5250 PCCX Series products, sociologia to PCCX 570 MeVilla. PCCXII VSL and PCXX. 3270 PC connections, the PCUX GATEWAY and PCUX GRAPHICS families.

DIGITAL COMMUNICATIONS ASSOCIATES, IN aTRA_COMMENCATIONS ASSOCIATES, INC.
Digital Communications Associates (inc. (DCA)
disagins, manifectures and manifess data com-munications network equipment and personal
computer-to-manifessity communications pro-ducts. DCA will be discussing a new family of
products that being IRMA functionality and All
Points Addressable (API) graphics capabilities.

Days 2, 3, 4: Product Presentations

MICRO-MAINFRAME LINKS

Hundreds of Micro-Mainframe Links (MMLs) are available today with a number of distinctly different architectures.

each with unique strengths and weaknesses. The most appropriate solution for your organization may be one using terminal emulation or simple file transfer. Open links or vendor-integrated links are other options you may consider depending on your users' needs. Each of these MML architectures will be discussed in detail at the Connectivity Symposium and the broadest available cross-section of the leading vendors will make in-depth product presentations

TERS MICRO-MAINFRAME LINK PRESENTERS

to personal computers on an IBM Token-Ring Network or other NETBICS-compatible LANs.

NFORMATION BUILDERS, INC Information Builders, Inc. is the eighth larges system sollware company serving the IBN DEC VAX, Wang VS, and IBM PC marketplace PC/FOCIS is a complete 4GL/DBMS for the

PC-FOCIS is a complete 4GL-DBMS for the IBM PC-which includes a ginner-maintainer link to FOCUS FOCTALK in a standalone micro-maintaine link that connects IBM or computable PCs to maintaine computers and enables the up and downloading of duts.

INFORMATION TEXTINOLOGIES, INC. information Technologies, Inc. designs and maticulactures Linktly add-in cost-connect. minutactives Lineup and in concrement, network and LAN galeway PC data communica-tions systems, priminity minuted to provide connection to EM maintaines. Lind D systems software modules its within a standardized architectural framework supporting their Kiry.

dedicated background print, file insuster and API

NTEL CORPORATION
Intel Corporation will present its Systems Interconnect Operation Product FASTPATH, a flexible. high performance connectivity platform that allows CEMs and system integrators to design a system connecting an ISM mainframe and industry standard MLETBUS R based application, to LAN's dissimilar hosts, GANs, and special

LEE DATA CORPORATION

E DATA CORPORATION

Lee Data Corporation is a manufacturer of networking and local processing systems for the 3270, async, and PC environments. Lee Data and their Datastream Networking Division will be presenting innovative solutions and products which address today's \$270 gateway usuats and

LOTES DEVELOPMENT CORPORATION

THIS DEVELOPMENT CORPORATION
The Application Connections is a line of PC and
maintraine products from Lobus, designed in
corporationally Picapitations, micro-maintraine
links, and host applications. The C supports all
communication links and many PC application
pochages. The C provides PC utern with estate
and import expalsitions to maintrain packages
maintaing SAS PCULS, PAMS, NOMAD, SQL
maintaing SAS, NOMAD, SQL

ARTEN MARIETTO, DATA SYSTEMS
Manin Marieta Data Systems provides the
UNISON seems of Pc products for a complete
information centre workstation. The UNISON
McConflaming Connectivity products will be
foutured. These include RAMIER, which provides
PCaccess and opporting from manintern RAMIS
II VIRTUALists which expands the stronge and
data streams qualifiely of the PCp. Manistrame. data straving capability of the PC, pc: Maintaine for data transfer from CICS and LinkT for

McCORMACK AND DODGE
McCormack and Dodge, a company of the
Our and Bradstreet Corporation, will be pre-

senting Interscient PC Lank, a tool that bedges the gap between maintrame data and personal combined with its on-line query and reporting feetures, provide a Besible reformation mineral

MICRO DECISIONWARE

Micro Decisionware provides Intelligent Data Access Tools for PCs. PC/SQL-link provides the PC users with access to DB2 and SQL/DS detabases, Teradata and Berton Lee database machines. Mosor functions include Creation of SQL requests using menus
 SQL requests using thenus · Automatically reformatting of data for use

Data structures stored on the PC MICRO TEMPLS INC.
Micro Tempus Inc., a leader in the micro massirane software market, developed the popular TEMPUS-LINK product. Best known for its structs copied Variagi Otek concept and its

powerful from Application Programming lens-face, TEMPUS-LINK offers a sample file transfer between IBM PCs and all major IBM mass/rame

NETWORK SOFTWARE ASSOCIATES, INC. Newsot Sobware Associates lite develops and markets a wide range of PC communications, products for both PC-up PC and PC-to maintaine applications. The company will greener its Adaptive and produced produced and lighting the adventages of Remote Job Enzy (NE) over 3270-type communications, particu-

N-LINE SOFTWARE INTERNATIONAL, INC. On-line Software International, Inc. provides Software Products, Education, and Consulting PREE-LINK is a powerful micro-no-maintaine link that eliginisets the need to program manframe data extraction and reformating for use at the PC. ONNILINK is an advanced micro-to-mainframe link that provides direct file uploading to CICS and support for EMS and

INVARY DESIGN
Polymap Design is a leading diverloper of Microto-Mainliante connecting products for the ISM
PC and compatible computers. Pathway will
present its netPrOH and pcPATH product lines.

remole IBM hosts in either an SNA or BSC en remoir BM hosts in either an SNA or BSC en-visionment. The netPRID1 local area network (LAN) gateway products allows PSC attached to a LAN to access IBM maniferames in an SNA environment. All Pathway products include uninovative lentures such as file transfer. Thos lay: multiple session support. Auto-Dail and

COMMUNIC DAY Service. Inc. is a leading supplier of Data Co

munications Software products for IBM 370 sostems running either VM or MVS/VTAM and spalems naming either VM or MVS-VTAM and for BM compatible personal computers. SIM3278 is a bost-bened application that provides 3270 emulation for BM compatible PCs and more than SI ASCI terminals. SIM 3278-PC is a micro to mainframe package that offers error-free frie

SOFTWARE AG OF NORTH AMERICA A micro to magnitume link enabling both up-loading and downloading of data, NATURAL CONNECTION catends at the power and pedac-tions benefits of NATURAL to the periodial computer uses, and allows the distribution of

processing and dear storage across PC manel

bondaries

NICRAM STRIBS CORPORATION

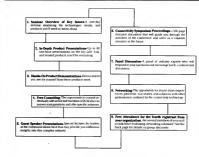
ARRITER as YTMM based cooperative principaries
and similarities. ARRITER appression a general
communication subsware stration regulates
of the current or haire network connecting or
application devicement eventures. All proposed as
provides operated in souther network connecting or
applications devicement eventures. All provides
provides operated in souther network or
provides operated in the connection of the connection

ced application program in

HM PERSONAL COMPUTING
VM Personal Computing's RELAY Family of
communications andware provides error free
communications between IDM and compatible
PCs, and between PCs and IBM maritames, PC packages feature background operation and script language with least mode for automating and customating construitications. Hardware-free 3270 emulation is possible, and popular 3270 estrulation boards and protocol con

XYPLEX, INC. XYPLEX Inc 's Destributed New XYPLEX In: a Distributed Network Communications Systems provides from end processing for VAX and MicroVAX lamily computers, and strength of VAX and MicroVAX lamily computers and PCs, as well as terminal denses hetwork cibbing choices include Ethernet, Limear Cossial. CVIV. and Optical Flow. The prison is installed primarily in Rotuste 1000-class organizations.

9 REASONS WHY YOU SHOULD ATTEND



THE UNIQUE FORMAT OF A DCAI SYMPOSIUM

In 1981, Dr. George Schussel devened a tomat for the well-known Nutronal/Bushbace of Micronation Language Symposium, one day substance of the second providing a background in distribute technology, resulting the second providing at background in distribute technology, product presentations and live demonstrations by an observations. For live years, throughout of a state of the set of the conferences on order to research state-old-the-set technology and evaluate software for their organizations.

Now DOM is applying this proven formal to the evaluation and selection of connectivity products. The National Connectivity Symposium on Local Inter Networks and Micro-Mandiane Lenks will not only enable you to learn what you need to know but talk with the sendors who count in the connection of the connection of

Day One.

On Day One, our Symposium Keyener Speakers will orient you to the
world of networking and connectivity, exploring the issues, stanworld of networking and connectivity, exploring the issues, stantion of the control of the connectivity of the control
of the control of the control of the control
of the control of the control
of the control of the control
of the control of the control
of the control
of the control
of the control
of the control
of the control
of the control
of the control
of the control
of the control
of the control
of the control
of the control
of the control
of the control
of the control
of the control
of the control
of the control
of the control
of the control
of the control
of the control
of the control
of the control
of the control
of the control
of the control
of the control
of the control
of the control
of the control
of the control
of the control
of the control
of the control
of the control
of the control
of the control
of the control
of the control
of the control
of the control
of the control
of the control
of the control
of the control
of the control
of the control
of the control
of the control
of the control
of the control
of the control
of the control
of the control
of the control
of the control
of the control
of the control
of the control
of the control
of the control
of the control
of the control
of the control
of the control
of the control
of the control
of the control
of the control
of the control
of the control
of the control
of the control
of the control
of the control
of the control
of the control
of the control
of the control
of the control
of the control
of the control
of the control
of the control
of the control
of the control
of the control
of the control
of the control
of the control
of the control
of the control
of the control
of the control
of the control
of the control
of the control
of the control
of the control
of the control
of the control
of the control
of the control
of the control
of the control
of the control
of the control
of the control
of the contro

Days Two-Four

On the second, third, and lourth days you will have the opportunity to apply the concepts learned on day one while attending one-hour product presentations on all of the Heading MM Init AND LAN products. Four presentations has concurrently and you may move between presentations as you wish.

d owweel presenance as you weal.

d In addition on these days, guest speakers, all industry leaders, will
speak on a variety of loppics which affect the link I/AN industry. They
will provide valuable insight into industry trends, in order to help
you achieve the maximum benefit from your new knowledge. These
speakers will also be a williable throughout the four days to answer.

questions and oller implementation relyice, and suggestions.

Finally, on Day Pour, the symposium will conclude with a panel discussion, lentung industry leaders helding attender questions. These discussions oller you the opportunity to let influential people.

know what you as the customer are thinking

SPECIAL FEATURES

GUEST SPEAKERS



R. ROBERT STEEN

IBM Local Area Networks: High Speed

M Corp.

e President Distributed Systems fital Equipment Corp. langing User Requirements: Beyond



CXI, Inc. The Evolutionary World of 3270



DR. GEORGE SCHUSSEL

tal Consulting Associates, dware and Software Futures





Fourth Generation Systems
The Token Ring Standard: Vendor





nager of Network Systems WHO SHOULD ATTEND

MIS Directors and DP Managers - who need to acquire and manage the communications products that will enable the effective sharing of information resources.

Communications and Network Managers - who plan to interconnect corporate MIS resources to achieve greater productivity within the company.

Data Base Administrators - who need to understand the tech-nologies and their implications as increasing numbers of users demand access to the corporate database. Application Systems Managers and Analysts - who also must understand the technologies in order to develop distributed appli-

cations-

Executives, Planners, and Senior Management - who want to ensure that connectivity decisions meet the strategic needs oil the Departmental Managers - who expect greater access to corporate resources for distributed processing

DON'T MISS THIS CHANCE TO ATTEND IF:

You are at the decision making stage of switching to a LAN
 You are concerned with the way your current link is working.

You are interested in evaluating LAN and link products
 You are experiencing problems with incompatible systems
 You are concerned with end-user satisfaction

. You are interested in how connectivity issues impact your company's strategic plan

• You need to understand emerging standards

HOSPITALITY SUITES

These suites provide a related environment in which you can ask questions and socialize with industry leaders. Enjoy the hands-on product demos and the chance to relax and share the company of Jellow attenders!

PROCEEDINGS

Every symposium attendee will also receive a copy of our "1986 National Connectivity Symposium" Proceedings, a useful resource guide long after the Symposium is over.

PANEL DISCUSSIONS

live, olien controversial question and answer sessions offer you the opportunity to question in-dustry leaders and use their expertise to much solutions



TWO WAYS TO REGISTER:

L. Call 617/470-3880 between 9:00 a.m. and 5:00 p.m. Eastern Time Fill out and mail in the courses below (please include mailing label)

REGISTRATION FEES		CANCELLATION POLICY -
Individual Fee, Entire 4 Days	\$795	Cancellations received two weeks or more prior to the Symposiu
Second and Third Registration	\$695	will be accepted subject to a cancellation service charge of \$2
Fronth Repolation	FREE	Transfers to a different Symposium date or substitutions will I
Fifth Registration and Over	1495	accepted with no cancellation service charge as long as the lee 15 pa
Individual Fee, Day One Seminar Only.	\$395	and the request is received before the date of the original Symposium
		Registrants whose cancellation requests are not received two week
GROUP ATTENDANCE: Previous attendees of our S	emposium have	prior to the Symposium (or no shows) are hable for the entire fee
told us that the best way for companies to gain the m	ost benefit from	

the program us to send two or more attendees. Our discount structure is designed to encourage multiple registrations from the same comparty. Have you considered sending representatives from different desartments, division, or locations within your organization?

DIGITAL CONSULTING ASSOCIATES, INC.

DIGITAL COSE LING ASSAC MESS, INC.
These seminars will be conducted by Digital Consulting Associates, Inc. (ECAL), a leader in the field of EDP management training DCN is located at 5 Kimberly Terrace, Lannineld, MA 01940. telephone: 617:

IN HOLSE SEMINARS We can bring many of our seminars in-house to your company. Our in-house seminars are one of the most cost-effective ways to update your managers and professionals about the lending software tools and technologues. For more information, call (617) 470-3870 and

SOFTWARE PISTITUTE OF AMERICA These seminars are sponsored by Software institute of America, inc. (SIA), a non-prulit educational organization dedicated to increasing understanding of advanced business oriented software. SIA is based at 8 Windsor St., Andover, MA ((18))), telephone (617) 470-3880

SHERATON INN & INTERNATIONAL CONFERENCE CENTER December 8-11, 1986

The Sterator fee and International Conference Center's located in the heart of Virginia's Hunt Country, just minutes from Dulles Airport and the Pentagon This unique conference centerollers 302 rooms. the elegant Derby Restaurant and Derby Lounge, tennis courts, pools, and an adiscent twin cinema. Also adjacent to the hotel is a small shopping center leatining a full service bank and many small shops. The Sheraton Inn and Conference Center is located at 13830

Sunrise Valley Drive, Reston, VA 22091 (703) 620-9000. Contact the hotel directly to reserve a room. A block of rooms is being held until three-weeks before the symposium. For preferred treatment and lower room rates inducate that you are attending a symposium sponsored by Soltware Institute of America, Inc. and conducted by Digital Consulting Associates, Inc. Room registrations and hotel charges are the responsibility of the individual participant

REGISTRATION FORM

TYPE OF REI	
	4-Day # \$795 [] Day One Only # \$385
☐ Multiple (3	ee Registration Fees)
-FOURTH	EGSTRATION FREE
TOCKINI	2.001001001PG
Andrew Street	and



(617) 470-3880 Cdl 9 a.m-5 p.m. Eastern Time Conferms belephone registration

METHOD OF PARMENT Software Institute of America Inc Purchase Order attached

#GISTRANTS:						
We						
Lenr						
ide	_			-		
Gener		_	_	_		_
impati.			_	_	_	_
ompeter				_	_	

Authorized Signature

Interview

EDI linked to just-in-time manufacturing at Navistar

Ben Milbrandt, manager of materials operations at Navistar International, recently completed a one-year assignment as the associate director for the Antomotive Industry Action Group (ALAG). Currently, Milbrandt is vice-chairman of the ANN I. A.E. B committee and actively involved with the publication of the Joint Electronic Data.

Interchange (JEDI) dictionary. How did Navietar learn about Eletronic Data Interchange (EDI) and how long has it been using an EDI

We started out seven years ago, when we were approached by some of our suppliers who were communicating already through EDI with Ford Motor Co. and General Motors

Ford Motor Co. and General Motors Corp.

They thought EDI would help them leaen their exposure to the adverse effects of a down turn in the antick. At the same time, we were working on the concept of developing a better information system for ourselver. Since the expansion to an antural, we began communicating with approximately 30 suppliers.

Was it a proprietary set then? Yes, back then there were no national standards. Everyone was using their own fixed, in-house formats. But our proprietary program was so successful in the first 18 months that we were able to reduce our inventory by about \$107 miltion. We didn't realize we would have any where near that type of

our inventory by about \$107 misition. We didn't realize we would have anywhere near that type of success.

The network also gave better information and better planning tools

to our suppliers.
By giving them four weeks'
worth of detailed information that
is fairly reliable, they can plan their
production, to the piece, for what
we need. Before we started with
EDI, we had 33 days' worth of engines on hand. Now we are actually

working with about four hours of inventory. That didn't happen overnight, it took several years, but now we have four hours' worth of engines shipped sequentially.

So you are operating a just-in-time

facility?

Yes. Many of the components are just-in-time, although the just-in-time philosophy works a little differently, depending on the supplier. For some suppliers it means ship sequentially sand have a little such the floor. For other suppliers, such as the one that makes our instrument clusters, the just-in-time philosophy is a total concept for the elimination of water—including.

How many distributors are connected to your EDI not new? Approximately 600 ship to the Springfield [Ohio] plant and approximately 105 ship to the Chatham half of our suppliers.

You started off seven years ago with 30 suppliers, and now you are

so to 7007
Yes, Now the state of the art is a lot more advanced. Caterpillar Tractor Co. started in the June of last year. They now have 350 suppliers on-line. They did it in a relatively short time because they are using standard formats and many of their suppliers were already communicating with other manufacturers. To

day a company can virtually bring on all of its suppliers in a year to two-year time frame.

Was it difficult moving from a proprietary net to the standard, and do you still use your proprietary net?

We have gone to the standardized. create the payables documents.
Ford's payables records are aiready created from the receiving file. When Ford confirms, "Yes, the goods have been received," the systems will send a message to the accounts on whole system that says.

secounts payable system that says,
"Now handle this as though it were
an invoice."

How long do you think it will take you to get up to speed? We are projecting to bring up a

test this fall on the first 20 suppliers, and then the expansion will be gradual over the next year or so. Probably by the end of '87 we will have 150 to 200 suppliers on-line.

What are the pros and cons of dealing directly with your supplier

For companies that receive and send a lot of invoices, EDI is a natural. For those that process a lot of freight bills, EDI is also a natural.

X.12 formats; that is, we offer it. But we give our suppliers an option. They can use Navistar's standardised formats, which they have already been programmed to use, or they can go to the X.12 standard at

their convenience.

I suspect that in a couple of years' time, the majority of them will have switched over, but right now we are not mandating that they go to be X. 12 format. The majority of suppliers that we have signed up to be years and, "Well. Illier the standardised format, and 'Ill wait lill you have that a valiable." When we made that a valiable in May of the property of

Specifically, what type of information do you pass over EDI nots? Presently, we are sending materi-

Presently, we are sending material release and we also receive a ship notice from the suppliers.

Like I said, we have our own communications not hait in the next

Like I said, we have our own communications net, but in the next several weeks, we will be making a coporate decision concerning solecting a third-party service. This would make It less expensive to the suppliers and to us as far as supporting a communications network. In the next year we plan to expand the system to include invoices and an evaluated receipt system. They are not only the plan to expensive the plan

and an evaluated receipt system similar to what Ford uses today. Ford receives the ship notice and then tells the supplier that he doesn't have to send an invoice because Ford can use the ship notice to posed to going with a third party?
The advantage for us is that we can bring up suppliers a lot more quickly. Third-party services can handle the communications protoco

handle the communications protocol and testing of the data. And the use of a third-party vendor brings in the supplier very economically. It also means less investment in capital equipment and that we can expand the EDI offerings more rapfidly because we don't have to double

or triple our network to handle additional flows of information. We will be migrating toward payment of freight bills sometime next year and if the demand on our own communications network doubles or triples — we can't really handle it and serve our own internal net-

tripies — we can't really handle it and serve our own internal network. We realize that for those companies who we exchange tremendously high volumes of information with, it might be more economical if we maintained a dedicated line, but for

might be more economical if we maintained a dedicated line, but the majority of our communicati the third-party net provides bet windows, better service.

You mentioned a minute ago that you wan thinking of paying for your shipping costs through ED. Do you his point to effer ED-compatible financial services seen?

They already do. Dennis McGinnie from North American Phillips

is from North American Phillips forp, uses, I believe, Chase Manhat an Corp. for his freight bill pay-

I understood that the Electr Funds Transfer standard was a compatible with EDI yet? I was talking yesterday wi

I was talking yesterday with Terry Turner from Nacha [National Automated Clearinghouse Association], and she said the actual CTX [Corporate Trade Exchange[standard will be available in April of 1867. So that is correct. Many are using the automatic check clearing.

What are the market pressures that seem to be pushing a national

that seem to be pushing a national standard?

There are a couple of pressures and one big one. Ford, GM, Chrysler Corn. Navister and Caternillar, the

and one big one. Ford, GM, Chrystet Corp., Navistar and Caterpillar, the companies using EDI, found that it saves them so much money to communicate with the major suppliers that they wanted to expand their networks to include 100% of their

supplier base.

And now, EDI hardware and software is cheap enough so that you
can set up EDI communications with
a personal computer. If you migrate
to a standard, it makes it less costly
for the supplier, because he only he

Tell me about the ÆDI committe Have they resolved differences between TDCC and X.12?

Yes. The preliminary JEDI dictionary was published in June It is now ready in final form and will be published and presented this mosth at the X.12 meeting in Los Angeles and made available to the general public. It will be presented to X.12 to become a national standard. The transportation data coordinating committee says, "Yes, we agree that ready the differences between TDCC and X.12. The issues have

Do you have any recommendation or Computerworld readers interest d in implementing EDI nots? When heald they be in the planning pro-

They should be considering EDI and discussing it with third parties since that is the most economical way to get involved in a hurry. They should also look at purchasing software—there is mainframe transla-

ware—there is another war a mosttion software available either through a third party or through software houses that will talk to virtually any kind of mainframe system. It can also be PC based. If a company is talking about a translation system, it can get in and

transation system, it can get in and buy a package for \$15,000 to \$20,000 that will handle virtually all of the communications packages that it needs. As for applications, look for high-volume paperwork that's the quickest payback.

For companies that receive a lot of invoices, EDIs is natural. For those that send a lot of invoices, EDIs is a natural. For freight bills that they process, EDI is a natural. If they have a lot of freight bills that they process, EDI is a natural. Roughly you can figure 55 saved per document if you send it electronically or, from the other end. If you receive it electronically

Third-party vendors help users consolidate EDI transactions

Mailbox also acts as security buffer

By MARK WINDLER

These vendors aim their rvices at users who do not uve the interest or the re-tures to perform message

EDI transactions. By sing a third-party EDI ox, users can send to ple recipients and re-from multiple location ngle transmission.

arty mailbox provid ty buffer between smal world and the

U.S.A. is one company that uses a third party for its EDI and re-

vice a day rough the cDonnell Doug Data Interchi Douglas Electro rchange Co. On-e. By using the is itme-parvice. By using boxes, Heinz's systems nore secure, and the pany does not have to with the complexities of vignals and so

According to Tom O'Hara,

mentation is thy rapid third-party EDI

By accessing a third-party EDI mailbox, users can send to multiple recipients and receive from multiple locations in a single transmission.

vendor revenue is expected vendor revenue is expected to reach \$200 million. There-after, significant growth can be expected in value-added

ral data base that in-

rent forms: mailb

ng or document translatio Atware. Vendors will see

ies providing these

Control Data Corp., rai Electric Informatic ces Co. (Geisco), IBM, mnell Douglas, Sterlin

ired informatics General rp.), Kleinschmidt (a divi-n of the SCM Corp.), Rail-

Corp. (a subsidiary of the serican Association of stroads) and Transettie-

the greatest long-term of tustities in the communic nies come on-line with oir trading partners, the nsaction volumes will nw exponentially. Even we attractive to third-par-vendors will be the above-ntioned secondary EDI ap

on on prod

ms, inc. (Rostyn es, N.Y.), EDI, Inc on, Md.), The APL up, Inc. (New Cana Conn.) and Program Sci-ence, Inc.

(Ridgefield, Conn.). To date, the most su cessful EDI

egy has been
to target spe
cific induscific induscifi

illion to \$3 million range. The McDonnell Douglas of Geisco offerior isco offerings have focused on vertical industries respectively in grocery and heavy equipment/automo-tive, but recently the compa nies have been trying to of-fer more horizontal services They are betting on volume

of low-cost transactions and users, rather than on expen-sive specialised services for highly focused applications. This strategy is risky, as

main electronic mail servi like Dialcom, Inc. Dialcon MCI Mail and Western Union Corp. Easylaik is yet to be determined. Nearly all the E-mail vendors offer a forms capability allowing users to create and distribute com-mon forms that solicit the same information from mul-tiple sources, a rudimentary form of EDI.

form of EDI.

Moreover, the electronic mail industry is currently heavily involved in the development of X.400 Messag Handling Systems.

The express-courier in-dustry is also moving quick-ly to provide electronic transmission of invoices to transmission of invoices to the accounts-payable com-puter systems of large ship-gers. Players in this high-growth, highly competitive business have airrady deve-oped very sophisticsted in-ternal billing and package tracking systems. Providing customers with electronic in voices and transaction info

voices and transaction ir mation is a simple extens of the internal system.

of the internal system.
Airborne Express Corp., a
pioneer in providing EDI options for its volume customers, claims that companies
sending 1,000 monthly shipments can save \$10,000, or
\$10 per invoice, by replacing
paper invoices with EDI.
Poderal Express Corp. and Purolator Courier Corp., which currently offer in-voice information on elec-tronic tape, are enhancing

their customer automati

Winther is director of new communications services at Link Resources Corp., a New York market research firm. A Cost-effective

Substitute for the IBM 3299

The new Planesines Pill 2009 sight-port multiplears to the Planesines Pill 2009 sight-port multiplears BM 2014 Catagory A or Miscores currents created in our a series of the control catalog of the pill 2009 series of the control catalog of the pill 2009 series of this cost and installation time, and environment and the control catalog companies to the 2009 Adaption of an SM-2014 and (installation catalog catalo The Fibronics FM 3299 multipleser can add new fless and efficiency to your network at a very affordable p it's worth a call.

\$800



Fibronics -----

re Street Hymnels, MA 00001 Tot. (817) 779-07 ------------

Until the demine of rect 1000, AT&T was also a play-er in this market. It is very likely to return to the mar-ket, but no offerings are ex-pected before 1967. time of Net

DataLOCK 4000 from MicroFrame HACKERPROOF Dial-up Access Control

By combining ALL of the dial-up security technologies in a single device capable of protecting up to 4096 lines, MicroFrame enables the security system designer to:

- . Serve the unique needs of each ap-
- plication on the network.

 Expand the dial-up facility without risk to support new applications.
- Maintain centralized control and auditing of all system activity.

 Incorporate new technologies as they become available. ANY PROTOCOL

ANY APPLICATION

Call or write today!

2551 Route 130 Cranbury, N.J. 08512 (608) 395-7800

Why the biggest VS users are big on our memory.

When you call EMC for add-in When you call EMC for add-in memory, you're in good company. Our customers include some of the biggest Wang. 'Vs users in the world. Including Mobil Oil, Dun and Bradsteet, Northwestern Bell, Rockwell International and the Pentagon, to name just a few. In fact, chances are you'll find several of our customers right in your area. All these companies must

have a very good reason for choosin EMC, besides saving up to 25% on each memory board.

Actually, they have several good mesenne.

Our unconditional lifetime warranty is only the beginning. EMC offers the industry's first un-conditional lifetime warranty. Which means we stand behind our

memory for as long as you own your VS system. You don't even have to Vs system. You don't even have to pay a monthly maintenance charge. If you even think there's a prob-lem with an EMC board, just call our toll-free hotline and we'll send you a replacement board—abso-

lutely free. But that's not all. If you ever call in a Wang customer engineer, and the problem turns out to be our memory, we'll pay for the service call. Even then, your users experience no downtime because your system can be returned to its original memory

configuration.

And when you move up to a more powerful VS system, we'll give you a generous trade-in allowance on your old EMC boards.

Vou can get EMC memory
boards for Wang VS systems that
include the 85, 90 and 100. And
installing our memory will not affect
your Wang service agreement in any
way whatsoever.

We're the biggest independent supplier of add-in memory for Wang VS systems.

We're also the biggest supplier for DEC VAX," Prime," HP 3000 and IBM" System/36 and System/38 In short, EMC is the name to

remember when you want to expand your memory. But don't just take our word for it. See for yourself.

Send for Free Tuning Guide with tips on how to maximize your Wang VS performance. EMC has just released an indepen-

dently perpared Tuning Guide ex-clusively for Wang VS users. Inside, you'll find tips on how to fine-time your system. How to evalu-ate general system performance.

Techniques to optimize memory management. Plus many analytical

management. Yan many analytical tools to maximize your system's speed and performance. For your complimentary copy— or to order—call the toll-free num-ber below today. Or mail the coupon to: EMC Corporation, 12 Mercer Road, Natick, MA 01760.

For your Free Tuning Guide or to order, call today: 1-800-222-EMC2 Im MA, call 617-655-6600)

reposition.
YES, I'm interested in receiving a Prec Tuning Guide. ☐ Have a Sales Representative contact me ☐ VS 100 ☐ VS 90 ☐ VS 85
Name
Title
Company
Address
City
State Zip
Phone

No one is more committed

"What if...

...an office information system truly integrated your PC users, dramatically expanded their capabilities, combined office automation and distributed data processing, and made you look like a hero?"

Now there's an office information system that does. The Personal Productivity Center (PPC) from Hewlett-Packard.

The PPC puts PC users (including IBM) to work in one cohesive, integrated system. They can access departmental data, send electronic messages, share sophisticated peripherals,

What's more, they can do all this without ever leaving the PC environment. And without sacrificing what PC's do best: word processing, spreadsheets, graphics and the like.

and distribute information.

At the same time, the PPC brings a full range of office capabilities to your terminal users. They can share and exchange information with your PC users just as easily as the PC users communicate among themselves. The PPC is based on the scal-

able, compabile HP 3000 family of minitomputers. So you get a wide range of solutions, from individual workstations to local area networks to departmental systems. And with HP AdvanceNet, multiple PPC's can be networked to give you a company-wide solution, even linkable to IBM mainframes.

Yet no matter what size you are, or grow to be, the PPC preserves your control over which users have access to which data.

So, if you want to maximize the PC's potential, consider the Personal Productivity Center from Hewlett-Packard. Consider, too, itali range of quality HP products (including the HP Vectra PC). And consider that only the PTC gives you the HP commitment to service and support—as well as the

people who never stop asking "what if..." about how best to serve your needs.

THE PERSONAL PRODUCTIVITY CENTER (PPC)



A full range of compatible office information products that fit individuals, groups, departments or entire corporations.

For more information, and the

For more information, and the telephone number of your nearest HP sales office, call 1800 367-4772, Dept. 282M today.



Business Computing Systems

saw it as a mode at in the future a

er and we send out the ng order, it is very ex-sive, both in terms of ac costs and customer dis-

meene to restock the drework the corre r," Bridges adds. What is often ever wever, is the result of customer confidence. "A you can imagine," Bridges says, "if a customer is hav anys, "If a customer is hav-ing a special promotion at a store in Florida and we ship the wrong product, it might take weeks or months to re-store the relationship."

There are a number of different ways to approach EDI. Some companies spend a long time investigation available and limiting up a group of trading partners willing to work with them, according to the Tanker (long) his land. It is a subject to the trade of the trade

testing cycle can last a cou-ple of years.

In industries in which rade associations have been involved in EDI standards.

In industries in the involved in EDI standards, the discovery process in usually shorter. In many cases, industry associations have worked in conjunction with value-added networks or software developers on their rady-made solutions.

The NRMA, for example, collaborated during its pilot.

Treaty-made solutions.
The NEAR, for example,
The NEAR, for example,
the control of the control of the control
phase with General Electric
Beat with General Electric
Beat Control
Beat Con

d. Companies may also opt to ruse EDI through a value-ded communications pro-ser that will handle the unsiation as part of its ser-ce, thereby eliminating the ed for translation soft-



INTRODUCING INTELLECT/DB2

USING AI TO DELIVER DB2 TO MANAGEMENT

Introducing INTELECTORS — the system that by dramatically enhances your investment in IRE Jamaing DRS zocasible to managers in plain Raigish INTELECTORS was developed by Artificial Intelligence Corporation, the pioneer in commercial Al technology and the creator of BYTELECT, the Al-based natural language processing software used by hundreds of organizations worldwide.

Attend this free half-day seminar and learn about the six requirements for delivering DB2 to management.

1. NATURAL LANGUAGE

INTELLECTORE allows managers to tak questions of a DR2 database in English. Its use of advanced Al textniques allows users to request information in any way. The system understands ambiguous questions, and lets manners express themselves using their own vocabulary, which it learns as it's used. Al-based natural language delivers DR2 in English, eliminating the need to learn a computer language.

2. AD HOC ANALYSIS

NYBLECTORS enables managers to get activers to complex question enably and ente rescults in the complex question enably and ente rescults in the complex question enable and enterprise and managers and percentages, and complex functions including correlations and ratio ment only functions including correlations and ratio ment only form or pepths automatically, And they get all this without knowing amything about the distance structure, because INTELECTORS uses All to handle the destits automatically and tenspersery.

3. APPLICATION BUILDING

INTELLECT/DB2 provides facilities to build personal applications in English. Within the system's security constraints, users can create and update tables, build forms for data presentation, and request reports. The system's AI techniques free the user from having to specify the details.

4. PROPER USE OF DB2

INTELLECT/DB2 uses all DB2 capabilities such as security, the catalog and indexes to the system's advantage. And as a SQL generator, INTELLECT's interface to DB2 takes full advantage of DB2's power.

5. OPEN ARCHITECTURE

HTBLECTURE allows users to employ DEC databases or other databases and file structures in many additional ways. With INTELECT's PC Link, they can ask questions in English on a PC, have the results from IDE reformated into a Lotus 1-2-3 worksheet, and sent down to a PC. And, advanced work in AI provides voice input to your DEC databases.

6. THE RIGHT VENDOR SUPPORT

Our II years of experience in delivering commercial Al business solutions to over 450 customers means that you get finet, expert assistance in using INTELECTURE. You have access to complete product support, including a telephone hottine, comprehen sive training programs, professional consulting, and tutorial documentation.

Attend this free seminar. See for yourself how using AI can help you deliver DB2 to management. Call our Seminar Registration Office today at (617) 890-8400 to reserve your seat, or return the coupon.

Atlanta, GA Nov. 12 Boston, MA Oct. 14 Boston, MA Dec. 11 Chicago, IL Nov 6 Dec. 4 Chicago, IL Dallas, TX Nov. 5 Detroit Mi Dec. 3 Los Angeles, CA Oct. 29 New York, NY Oct. 15 New York, NY Dec. 16 Philadelphia, PA Now 13 San Francisco, CA Oct. 30 S.E. Palo Alto, CA Dec. 11 Toronto, Canada Nov. 5 Washington, D.C. Oct. 16

Washington, D.C. Do

Call (617) 890-8400	
Register me for a free DYTELLECT/DB2 seminor.	
CityDate	
I can't attend, but send a brochure.	
Nume	
Title	
Company	
Street	
City	
StateZip	
Trimbune ()	

Dec. 17

DTELET is a trainent of artificial hardgroup Corporation. SEE is a regional trainment of Elec-Lance and hill it as regional trainments of Lance



ordinal from man 60

ry requires to maximum its use of SEM, constitute the base entry prouts. SEM, constitute the base entry prouts. SEM, constitute the adds, so too local and immediate immercion. "Some people try to idealize what can be done with EDI and set out to create a fully integrated system increate a fully integrated system intered to the seminary of the seminary integrated system insurance and the seminary integrated year and high patch building a mainframe solution, only to find out at the send that it inn't really what they

need."

It is far better, Cetra says, to start
out small, maybe with a microcomputer and a few trading partners and
work out the kinks there. "Get your
feet wet before you start trying to tie

Commercial software market burgeoning

For those who choose not to construct their own train to programs for an Electronic Interchange (EDI) network, the now exists a substantial selectic commercial software products.

w exists a substantial selection of mmercial software products dejued for this purpose. Companies that are among the p ury sources of such software at it ment include Metro-Mark Intested Systems, Inc.; The APL

Froup, Inc.; Program Science, Inc.; and EDI, Inc. The list, however, is growing rapdly. The Automotive Industry Acers of EDI software, and a number service bureaus — such as Sterling Software, inc. (which aquired info matter General Corp.) — offer soft ware as well as value added service such as the creation of specialized data bases from EDI transactions if demand forecasting and geographic

data bases from EDI transactions for demand forecasting and geographic preference analysis.

What is more, EDI compatibility may soon become a feature in standard business software. Managemen Science America, Inc. (MSA) of Atanta, which has been working with the ANSI X.15 committee for almost.

nancial software to conform with the field sizes and formats of EDI. By the end of 1996, the firm expects that it will have a version of its software ready that is capable of generating outgoing transactions such as purchase orders, invoices

such as purchase orders, invoices and payment forms.

A third phase of development, which should be complete by some time in 1967, according to Vice-Presi dent Pat Tinley, will provide direct acceptance of incoming EDI transactions into MSA software files. "What

into order processing."
Right now, MSA seems to have the field to itself, but Tinley does not expect that to last very long. "I think it's inevitable that the competition will follow," he says. "I think it's almost going to be a requirement for

will relow," he says. "I think it's almost going to be a requirement for term with the same time to be a requirement for term within two or three year." Equally investable, according to most industry analysts, is an eventual conversion from direct points to-point EDI communications to third-party networks such as Control Data Party networks such as Control Data party networks such as Control Data press, McDonnell Duggias Electronic Data Inserchange Co. 's EDI Net and Bill with its Information Network.

M with its Information Network. Without recourse to a third-part urrier, says Victor Wheatman of the arket research firm Input, manage g the connections and adjustment in turn into "a very expensive var vof soachetti soun."

ety of spaghetti soup."

Caution should be exercised in selecting a network service at this
stage, however. "This is not a time to
make a selection on the basis of lowest pricing," says Audrey Mandeia of
the Yankee Group, noting that she
has heard some complaints regarding
the quality of service and lack of
knowledge about specific flouturies.



The first PC-based data en management tool to help you better manage:

EQUIPMENT ON ORDER

EQUIPMENT ON OUR INSTALLED INVENTS PROBLEM REPORTS CHANGE REQUESTS

(UNTIL OCTOBER 31, 1884)

distrette, cell er write:

DEALER PRODUCES WELCOME



Use this PRESSC interface as a gateway onto a LAN...access public deathcase served by packet switched networks...access date-only PEX...diskip he melintame using low-cost async moderns and a matching

the maintenance using low-cost async moderne and a matching Local Data protocol converter at the heat and ... all with a laystroke command switching from life! to ASCII mode. And for the best case delivination solution, solve your commentably problems using a Versallyne with a com-

interligent"/S278.

When operating in ASCII mode the Verseligent "/3278 emploise a standard ferminal, such as the VT-100/102, VT-65

of the user's choice. Color and data raises up to 10.2K lips are supported. Put a Verselunc at each lar-

supported.

Put a Verselupuz at each terminel or install a 10 channel rack at the controller site. Pur detailed information and professe assistance out (200).

de Trend publi grade.

Ell' le a trabane d'internation de la constant de la const

CD LOCAL DATA COMPAQ, the company that first improved the personal computer standard, does it again...

COMPAQ advances personal



In keeping with our established reputation is improving the industry standard in person computing, COMPAQ announces still anoth improvement. A new personal computer that the first of its kind. One that carries you far by yound the limits of today's "salvanced technically personal computers. It's the new COMPA DISSERPO 386", and it resches far high

Introducing the new COMPAQ DESKPRO

The most advanced personal

advanced-technology computers

The winning numbers

The new COMPAQ DESKPRO

No compromises

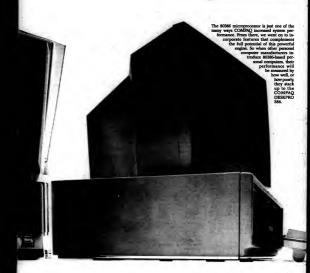
estability, to its numerous enhances, the COMPAQ DESKPRO

It simply works better.

computer in the world

DESKARO 3

Why the COMPAQ continue to be the world's most long after others



The most advanced personal

DESKPRO 386 will advanced personal computer copy its engine

The most memorable personal computer

Break the 640-Kbyte memory barrier and use up to 8 Megabytes of high-speed 32-bit RAW with the COMF40 Expanded Memory Against Common and the Common and the

Greater stores of knowledge

The COMPAO DESKPRO 366 provides the The COMPAQ DESEPRO 386 pt most storage capacity and perform ble in any personal computer. High-performance 40, 70 and 130-Megabyte fixed disk drives are 50 to 150 percent faster than those used in other advanced technology PCs. And they store 5,000 more

If fixed disk drive backup sys-m, you can back up and an influence orify 40 Megabytes of data on single formatted cartridge at the timesaving te of one Megabyte per minute—that's four ness the capacity and twice the transfer rate our previous system.

Lead a much more colorful life

When combined with the COMPAQ Enhanced Color Graphics Board, the new COMPAQ Color Monitor can display 16 colors at cone from a 64-color palette. This same board supports CGA and monochrome displays standards and provides the high-resolution graphics—640 × 200.

Shifting speeds

modate them. The microprocessor will automatically raise and lower the operating speed when your software requires it—one more way that our attention to detail further

Expanding horizons

Built to higher standards, with "more" standards

We build more into the COMPNQ DESICPIO 386, with more care. Interfaces for printers and modems are shaderd. We protected storage devices with shock inclaims options. We improved the leyboard to help tood to play the improved the leyboard to help tood to play the improved the leyboard to help tood to play the improved the leyboard to help tood the play of the leyboard to help tood to play the leyboard to help tood to play the leyboard to help too the leyboard to play the leyboard to play



It simply works better.

computer in the world

DESKIPRO 3

COMPAQ creates computer that



The most advanced personal

the first personal thinks it isn't

The better alternative to the dedicated workstation

The COMPAQ DESKPRO 386 is a pov that do one thing, like compute sided design, extremely well. Nov you can match their performance, and still run hundreds of industryard programs as well, with tem costing thousands of

A desktop

Net gain

vaning at a workstation for in-formation to make its way back and forth from a network file server or multi-user host com-puter can be frustrating. With the COMPAQ DESKPRO 386 as

Building bridges to engineers

For CAD/CAE and other "float nsive" programs, engineers can no n to the COMPAQ DESKPRO 386 is

can afford to provide each engineer a

CADICAS programs the AntiCAD^{PP} make you to do detailed electronic modeling, and the speed of the SERT responser provides made into resource Multi-task master

sticated users who spend a lot of time ag and reloading the different programs hey use can benefit from the power of the COMPAQ DESKPRO 386 through multi-tasking. Multi-tasking allows users amultaneously— an between them. And that cape-ness never been better than on the Q DESIGPRO 386. Its speed and more capacity make it ideal, espe-chen running soft-ider

Artificial intelligence

The speed, memory and storage of the COMPAQ DESKPRO 386 now make artificial intelligence in personal computers a real possi-bility. Soon available, these new AI programs promise to make personal computing even easier than it is now. The COMPAQ DESKPRO 386 is an investment in the future that pays handsome dividends today.



It simply works better.

computer in the world

DESKIPRO :

History in the making from a company that knows how



How does SOL handle

applications that don't

query? • Keeping SQL portable vs. imbedding

it in a 3GL • Major weakness: no support

for development tools

In Depth

Standard Query Language: It's a standard, but is it a language?

Dy STEPHEN GERRARD

he DP industry's tendency to overemphasize the benefits of any technology — the "magic wand" pheany observation of the overly exuberant reception given to IBM's SQL, the language of the relational data model. Many in the industry are promoting SQL as more than it really is and are sacribing capabilities to it.

that it does not possess. SQL's orginators and the academicians who have made important contributions to its evolution generally are not the ones who tout it as a DP curre-all. While certainly proponents of SQL, they also point out its

Rather, it is various industry observers, many of whom have never been DP managers, who seem to be the loudest in promot-

ring SQL as a quick fix.

This article will examine SQL not from the academic perspective but from the business perspective of MIS directors who every day must face the productivity crisis. It will consider the important contributions SQL is making to the advancement of data

But also noted will be the "dark side" of SQL — those things that may come back to haunt DP executives who believe SQL really is a magic wand for curing every DP ill.

This article should not be interpreted as anti-SQL. SQL is indeed an important new tandard with many good qualities, such as

the followin

Theoretical foundation. 9QL is solidly based upon principles of mathematics and logic. It allows complex data manipulation operations to be represented in a rigorous way. 9QL, along with the relational data model, brings a much-needed element of theoretical discipline to the world of data

base management systems. Seandarshaten SQI, or at least a form of it, is emerging as both a de facto and an internationally supported standard for management of the seandard for the seandard fo

easily portable between different hardware and software system, this idea makes SQL a Goddy enough, this idea makes SQL a double-edged sword for IBM. As origination and proprietors of the de facto standard, IBM is in an enviable position. However, SQL is not impossible to duplicate, and the proprietary benefits IBM usually enjoys can be expeded, opening IBM up to effective

competition from computer many contractives that offer SQL compatible DBBS products. One note of caution, however. Not a SQL are created equal. Even IBBM's version of SQL for SQL/IS, its smaller relational DBBS, and the SQL associated with DB2 dBBS, and the SQL associated with DB2 dBBS. The SQL associated with DB2 dBBS and the SQL associated with DB2 dBBS and the SQL associated with DB2 dBBS and the SQL associated with DB2 dBBS. The SQL associated with DB2 dBBS and the SQL associated the SQL associated

Set processing. SQL allows data manipulation operations to dictate, in one expression, the entire set of records, or rows, involved in the operation. This is much more powerful than the older record-at-atime methods of coding data manipulation

operations.

Set-oriented languages are a big advance in that they permit end users to concentrate more on the business problem — the "what" — instead of forcing them to grapple with navigating through the DBMS structure — the "how."

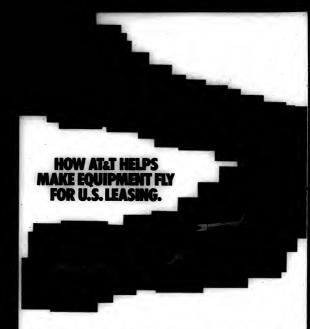
Set-oriented languages rely on the so-phistication of the underlying DBMS to

Set-oriented languages rely on the sophistication of the underlying DBMS to determine the best way to locate requested data. This potential can remove a lot of ciutier from the statement of the problem, thus enhancing maintenance as well as ini-

tial development.

Bistributed processing. SQL is particularly amenable to building applications for truly distributed data bases. SQL could

About the author Gerrard is vice-president and director of product marketing for Applied Data Research, Inc. in Princeton, N.J.



U.S. Leasing is the nation's largest independent company leasing office equipment, medical equipment, fleets of cars, railroad rolling stock, and even airplanes. How did they grow so big? Speed, efficiency, and knowledgeability. In a word, service. So, to increase their speed, efficiency and knowledgeability U.S. Leasing called AT&T. No longer will a customer have to wait

No longer will a customer have to wait for a U.S. Lessing employee to call her back with information before completing her transaction. No longer will the employee have to leave his deek to select credit, equipment, maintenance, and contract data from separate sources. Now, with ATAT 800 Service and the integrated voice and data communications provided by ATAT System 85 and ATAT Personal Terminal 510, the U.S. Leasing employee can access all the information from several mainframes and respond to the customer right from the PT 510 screen. So far, this has meant an increase of

2.5 hours a day per employee at the desk. Time well spent handling customer inquiries, pursuing new business, managing lease renewals, and finding new ways to serve customers better.

U.S. Leasing intends to grow with AT&T, linking more AT&T System 75s and terminals in their smaller offices, creating a single pool of information. So the whole company can communicate from a single database. ADET makes all the pieces fit. To find out how ATET can help you use communications to achieve your business goals, call us at 1800 247-1212.



er they re

er to learn, at le uages, and it is far mon ant, being coupled with anderlying relational 1 model. A major contri-on of SQL is that users 1 not specify access 1s and navigation to ac-desired data. neidentally, it has been erved that the relations a model is, in reality, it a model is, in reality, it

serveg this use resists, the sta model is, in reality, the rest data model. Older DBMS solved according to some-hat idiosyncratic, specialevolution of these s without a formal m tems without a formal mod el's guideposts has made their ready support of a lan guage like SQL impossible. This is one reason why old DBMS with "relational iencies in their

erted-list systems, on her hand, although no onal in their origins, much easier to bring i SQL world. This is be-use these systems, like intional DBMS such as DBS, use an index to access data records, although the index keys must be specified in in-verted-list DMBS operations whereas in relational DBMS the index is invisible.

ut many inverted-list IS have had set-proce dS have had set-process-languages and have sup-ted operations typical of tional DBMS (like JOINs) years. The task of adapt-such systems to use SQL of at all as difficult as it

With all of the above go

With all of the above gio-ing for it, and particularly with IBM's backing, one ma-wonder why SQL is not the long-awaited quick-fix solu-tion to the DP productivity crists. Indeed, SQL is a posi-tive new force. But by itself it does not address the full spectrum of issues pertainthe productivity crass be fair, some of the a covered below are be-the scope of present research and implemen-ns. But for the DP exec-

es is the

In SQL, there is no concept of a ogram — that is, a business proble program — that it, a business prooses expressed in a programming language with statements, some of which manipulate data bases but others of which do other important things. Date manipulation and definition are the only important operations.

The Datasouth High Performance Matrix Printers. Power Toughness Stiding to

the job until the work gets done. These are some of the working-class virtues we build into Datasouth printers. Giving the DS 180 and DS 220

the proven ability to run around the clock, around the calendar, in some of the toughest applications imaginable. is the result of a very advanced design

That kind of blue-collar reliability

philosophy One that created two hard-working matrix printers perfect for your medium-speed printing requirements, from 180 to 220 cos. Ready to take on multipart forms of up to 6 layers. Or produce Near Letter Quality text at 45 cos for wordprocessing applications. And although they're tough, Datasouth printers are easy to use, with front panel controls instead of dipswitches and jumpers.

Each and every DS 180 and DS 220 printer that comes out of our Charlotte North Carolina plant has been out together and inspected by hard-working people who take a lot of pride in building the world's toughest printer right here.

Put a working-class printer to work for you. To find your nearest Datasouth distributor call us at 1-800-222-4528.



YOU COULD SPEND ON ONE OF "FAST BMS **ICATION PRODUCTS.**



FASTEST FROM START TO FINISH.

In Depth/SQL Scrutinized

77

Imbedding SQL into PL/I or Cobol forces some cleater to be required in the SQL statements themselves. In addition, SQL detracts somewhat from the elegence of the language used to house it. The resulting program turns out to be a medicore solution as far as readability and maintenance.

ngths of

portant, if we consider the nature of applications wri-ten in imbedded SQL or so

L re-

y be n may in

or you could spend KS TO TEST DRIVE imes faster.

* RECORDS to produce for the + Garte, 27, 47, 46, and + foreign + Garte, 37, 47, and the second seco

Have to try it to be convinced? For \$50, not you the PROGRESS Test Drive. It's a tion version of PROGRESS Timed only are size, and it includes a working is application. And if it's not faster than the progression of the progress of the progression of the progression of the progression of the progression.

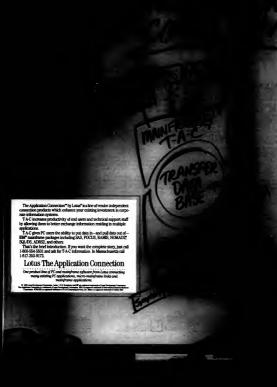
The DBMS that gives "fact" a whole new meaning.		
[understand]	MODIFIES But Drive for \$50. 0 in that I am entitled to a full as within 20 days of mosts.	not as fact as you say it is,
CALL 14	00-FAST 4GL	
None		
Title		
Company		
Address		
Ow	State Zin	
-	******	

Ship COD 65 ettal

tional offerings, states that the DB2 catalog could easili be extended to become a more full-service data dicti nary. This, however, is sim-ply an attempt to explain why such an important par of an application develop-ment environment is unadressed by relational re-

Another productivity is sue is that of the application developer's workstation —

CHINAI Missing business there? Sample IDC Asia's EDP CHINA RE-PORT for real inside on computers, electronics and communications: Call 800-227-1053. EDP China, WGE Center, Route 202 N. Peterborough, NH 03458.



hat is, the on-line environment in which the developer

ment in which the deve works.

Included are facilities such as split-screen option, intelligent editors, built language template ternate command and a operating modes, Helptutorial aids and other

use designed to make the applications developer as productive as possible while working on-line.

A final practical issue is that of migration to SQL. There is no realistic way to use SQL with existing applications, which means that the applications must all be rewritten before the benefit

rigorous way to reconciuse prerelational applica ns with SQL, this proble Il persist for IBM users.

the items contained herein under nonlanguage issues are rightfully outside the realm of SQL and that, ther fore, SQL should not be cricized for not addressing them. To this we would

agree, as long as SQL is not being promoted as a total as plication development solution. Otherwise, these issue cannot simply be disregarded — they are critical to the programmers and analysts who must develop the appli

Academic orientatio

we come now to perhaps one of the most sensitive areas of SQL's dark side. Even though the mathematical and academic origins of SQL have been noted above as a primary underlying strength, I nevertheless also include these origins as a

most end users do not have : Ph.D. in mathematics and logic. Although some end users can learn SQL to perform very simple queries, using it for more complex operations is beyond their grasp. One has only to look at the series of examples used in textbooks on SQL to find out

Most people — end users and DP professionals alike — who read these examples find it far easier to understand the free-form English explanation of the queries rather than understanding it from SQL itself. If you have access to such a text, try this simple test: English explanations and see how many times you get the operation right.

Because of the academ cally precise mature of SQ end users often invoke of ations they did not mean invoke. This raises the ditinct possibility of inadetently consuming large amounts of computer re-

An application may be characterized as a production application just because it is used every day, not because it has the attributes of a traditional, heavy-duty DP system.

or one thing whereas SQL inks they are asking for mething entirely different which leads to the typical oblems of data misinterestation and hance misi-

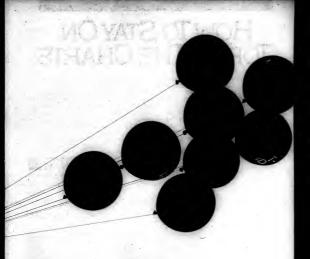
Debate on this point could rage forever. It may indeed be the case that expressing every last esoteric data manipulation operation is not possible without a language as precise. prehensive as SQL. But it may also be the case that the vast majority of end users do not need to perform the more socieric functions that SQL supports. For these users, nore friendly alternative have proven far more productive and useful.

A simple comparison of

Sql with another commercially available query language (see chart page 41) bit too mathematical for endstatementa perform the same business function, but the alternative is definitely easier to grasp, although it is perhaps not as precise. For this reason, IBM and other ven-

The Diconix 150. So quiet, it's the one PC printer you can take lightly. Anywhere.





NETWORKING

HOW TO STAY ON TOP OF THE CHARTS.

One thing is certain. You have to present a quality image. And you have to maintain it with absolute consistency.

That's why you should look into the new Seiko Hardcopier. You can get a variety of output sizes. With strong vibrant colors and clear, sharp lines on both paper and transparency.

Plus you can get those copies in as little as 45 seconds each. For a lot less money than you thought possible.

> image data

you off-line. Because its frame buffer holds the

The Seiko Hardcopier can make a hundred copies for

and frees your terminal. You just set the quantity you want and go on working.

You even get independent image control at the hardcopier. You can change colors without changing the image on the screen. And get hardcopy or overheads that look great even if the colors on the display aren't quite right for presentation purposes.

So make one phone call. We'll present you with the whole quality story. And make sure you have the hardcopier that will keep you on top of the charts.

Call Martin Nelson at SEIKO (408) 943-9100 today.







In Dooth/SOL Scrutinized

adly front ends to SQL designed rotect the user from the difficult are of the SQL language. An ex-le would be IBM's Query Man-ment Facility.

So while SQL's stre

sanned end ser in order to it reliable re-

trend

, is mu-ier to use a the old Codasyl DMLs; it do compare so favorably with sor compare so favorably with sor

om the

overy increases, the Inaquage tatementa often become too difficult or most end users to handle. This is why SQL is sometimes used occessfully by end users, while in her instances it is not. Although mples operations are

derstand and to maintain than it is in some of the other languages that are currently available.

SQL is an important language and an emerging standard of the future. It has made many positive contribu-

s to the DP ty. In this at the dark of SQL, we While SQL's strength is due largely to its as an eargest to its academic completeness and attention to rigor, it suffers from a certain nufriendliness, requiring a highly qualified user for reliable results.

into the ering SQL as a full-blown ap-nt system. Some

rectly enaberant industry analysts ave erred in implying that SQL ca-lve the application backlog. SQL is only a DML/DDL, not an optication development system. By itself, SQL offers no facilities workstation concepts or program logic constructs. All of these items are vital to the job of application development today, and the applica-tion backlog cannot be dramatically reduced without surface.

out paying atte ecutives who ignore this les-

son will only suf-fer grave disap-pointment later pointment later when SQL fails to live up to the toohigh expectations

as an e direct ian-iage for all us-ia. In the same

Architecture LU6.2 in bui

re will st internal NAL port within a DBMS but will un-bredly choose to use languages are to applications de-

ssed. SQL, when married to the m igher level fourth-generation lan-uages currently available, can pro-

on in a gameric SQL

same time, much sner as and facilities can be d facilities sh the real busine muick o ons — the qu

Only CCC" Has Enough Clout!



Softool Corporation

- Welt Lie At DEXPO West, San Francisco, Booth #812



The Software Product that stops **B37, D37, E37 Abends**

Comments from a few of the 500 customers:

"in our butiness, we have to be on time—no excuses! Our 'batch window' is very tight. We do not have time to re-run jobs. \$70P-X37 makes us look

Finally a month-end without X37 abends -- MANAGER OF TECHNICAL SERVICES INSURANCE COMPANY

"Our data sets fluctuate daily, depending on the stock market. X37 abends were killing us before we installed STOP-X37." -DIRECTOR OF EDP BROKERAGE HOUSE

"STOP-X37 saved a major job from abending at 3:00 a m, during the evaluation period ... Guess who didn't have to wake up and fix it? I became an instant fan of STOP-X37."

-PRODUCTION SUPPORT MANAGER MANUFACTURING COMPANY

Are you ready to stop space abends? se call for references and a free evaluation. (404) 483-8852

THE LEGITATION INC.

ters 1275 Parker Road, Convers, Georgia 30207

When you're trying to bury the competition, who gives you the tools?



Computer Corporation of America.

Research is a part of our investment to maintain leade ware development and state-of-the-art systems. Our co at includes a department of PhDs, researchers and syst

sentists.
Plus more than 100 database developers and desig And their work is paying off. In products that let ye e most of data. With productivity tools that network

ters useable even for the "nontechnical m of America. A firm that's doing every

competition	the scoop on how CCA can ambridge Center, Cambrid	
Name .		
Company		
Title	Telephone	
Address		
~	State	710

In Depth

By DON KAZEMZADEH

xecutives of the America makers Association (ABA).

Inow the frustration of playing telephone tag. Needing to
communicate crucial legislative information to their peers across the country, these officials have instead often found themselves talking to office sec retaries or automated answering ma-

commences.

Communication problems like these can be detrimental to the association's ability to lobby for or against important legislation. Effective lobbying is often a matter of responding in min-utes or hours, not the day and a half it takes for some executives to return

one calls. To resolve this problem, the ass tion conducted an extensive search for

an effective communications system. The search resulted in a system based

77

The most impressive feature of all is seeing the system successfully transmit messages even when the PC at the receiving end is turned off or is running another application.

on modems connected to IBM Perso Computers running Western Union Corp.'s Easylink Instant Mail Manager

communications software.

Each state association and the national office of ABA subscribe to the Easylink service and use the modem and PCs to allow instant communica

Now executives can exchange infor-mation about current issues as soon as the latest developments are known. The new system not only solves their old problems but provides some unex-pected benefits as well.

In addition to lobbying efforts, the association uses the system to keep its association uses the system to keep its members informed about the impact of new legislation on the commercial banking industry. ABA and state asso-ciation executives work together on a daily basis, discussing their govern-ment relations activities and exchang-

neadeh is a bus

American Bankers Association:

Low-cost messaging links members instantly



ing general banking news.

ABA's councils and committees de-termine the commercial banking industry's position on federal regulations and on legislation proposed to Con-gress. With members in the 50 states, Puerto Rico and the District of Colum-bia, the association's goal lies in maxi-mizing the industry's ability to com-pete effectively and profitably in the ncial services market.

The first step on the road to the ABA's selection of a communications system began with telex. A system was installed initially that transmitted ABA messages via telex to state associ-

ations, where they printed out on telex machines. The system worked relative-ly well, but there were a number of pressing problems.

First, telex line is expensive, and some of the state associations were unable to keep paying for it. Further-more, to send a message by telex, each office needed a telex machine avail-

able plus a telex operator on hand. In addition, communications were limited, for the most part, to one-way sages. Technically, the state ass ciations were able to send a message back to the ABA, but practically it was very hard. Thus after receiving the messages, the state associations still went through the process of calling the ABA to discuss their content.

There were also some mechanical roblems with the telex machines, like the paper running out in the middle of a message. Last, anybody who has ever used a telex machine knows how much noise it makes when it is printing, and God forbid if it starts running while you are on the phone and the machine is nearby. This was a major

roblem for the office personnel.

The state associations asked the

ABA to look for a better system that was cheaper to operate and less noisy As ABA's business systems analyst, I was assigned to this project, called the State Association Urgent Message Delivery System, which is now for

When a m

Since the state associati rated throughout the cor as obvious from the begin stry, it

vious from the beginning that ver the system, I had to find a wer the system ement for messaging across and telephone lines or the o cost would have been high the point at which I

ugh one of the publi ations networks. Be-works have local-aco ad the country, they

have the capability to accept a mes-sage and forward it to another loca

This method is called store-and forward, referring to the way the

message is accepted and then tran mitted to another location. Typics ly, it takes anywhere from one to four minutes for a message to be

of course, at the receiving end, the call should be answered by so sort of an autoanswer equipment. The telecommunications companie call this service "autodelivery." or

I consected a number of tesecon-numications networks and hardwar-vendors and asked them for any so-lutions they could suggest for the ABA's problem. The following is a summary of all such proposals the

modorn' names:
Dedication of a telephone line, a
rinter terminal with an autoanswer
odem and direct delivery of the

essages by a telecetwork.
This solution too ution took care of direct on problems and the telex

77

Anybody who has ever used a telex machine knows how much noise it makes when it is printing, and God forbid if it starts running while you are on the phone.

line, but we still had the following problems: The equipment needed was expensive, and two-way comm-nication would not have been easily

possible. In some addifferent version of the telex, albeit far less noisy, and a factor of the telex, albeit far less noisy. The second of the telex, albeit far less noisy. The second of the telex noisy far and telex. The far less noisy far and tens, while the meanings are not the second of the

that user will be delivered to his mailbox. Of course, the user has to have a terminal and a modem to call up the mailbox every day to check for messages. The problem with this mailbox system is that the user nev-er knows when he has a message

er knows when he has a message waiting to be read.
Ironically, this solution resembles the sailbox service, because there is no way to tell when there is a new message in the FC waiting to be read.
This means that users must check the FC instead of their nailbox, until the FC waiting to be read.
The FC instead of their nailbox, until the FC instead of their nailbox of their

rollers to enab



MITRON'S STD 1600 TRANSFERS DATA AT 56 KB OFF-LINE TAPE-TO-TAPE

Mitron's STD 1600 provides an efficient method for sending and receiving data anywhere in the world. STD 1600s communicate with each other and with other companies' bisynchronous terminals and computers.

The STD 1600 solves machine compatibility problems. It trans-fers data reliably without mailing tapes. It can communicate offline to relieve an overworked computer.

STD 1600s transfer data at speeds up to 56KB. Double-buffering eliminates delays caused by read/write cycle times.

The STD 1600 can be leased or nurchased.

STD 1600 features:

- Easy-to-install ■ Needs no softwa
- Dem rates to 56KB RS-232 or V.35
- Dial-up or private line ■ Multiplexers
- 800 or 1600 bpi ■ 1200' or 2400' reel size
- Bisynchronous protocol ■ Transperent or non-transparent ■ Space compression
- Variable size records m 16K Labels and multiple files
- STD 1600 options: Autodialing
- Asynchronou Code conversion

CALL 800 638-9665 FOR

PRICING & DELIVERY.

Since 1969, Mitron's magnetic

tape systems have been used in a

wide variety of data communica-

tions applications. Let us explain how you can connect the STD

1600 to your system or data com

munications network. Call

800 638-9665, 9666 (in Maryland,

301 992-7700)

MITRON Systems Corporation 2000 Century Plan Columbia, MD 21044 til. It called for \$22,000 per state association, with, of course, the ABA buying som surdware. Besides, the mul-tiasking software to this lay has not been released,

nis solution was the ex same as the mailbox ser offered by the telecom scations networks, pt that it was \$22,000

ne of the proposals ad specifically suite quirements. While ating the vendors' pro-solutions, I developed slowing specific system a, which would suit the reseents above: above: nawer device to

were dervise and statistic on an object of the statistics of the s

the autodelivery as from a few of the to

ly transmitted even was turned off or when it

e sender originates a uge by calling the local

Although I had a system that satisfied all the functions technically, I still had one problem. Some of the people who had to use this system had no computer experience, and there I was, talking about damb terminal emulation and izzuing modem commands.



Some people just ask for trouble. book. And it can operate under TSO, TONE, ROSCOE or CMS. No more errors — no mor bles. It's that simple. And

ccessful.
Over 700 DP departments
w use JCLCHECK software to

errors of their ways, and

n't it amazing just how many po. > around asking for trouble? Why, we're willing to bet ere are people in your DP depar ent this very minute firting with

er.
They're running the risk of a
need DD override, an invalid
tenation, or some other
ly obscure JCL error bringing
tole kit and caboodle to a
him half. hing halt. Then all they have to do to

things running smoothly is our KLCHECK* program. KLCHECK software catches

ALL/Hour Rouses of all JCL errors and provides com-plete, on-line JCL validation and concise error diagnostics. Plus complete documentation on a job

correct the errors of their ways, as we money at the same time. To put it in another perspective we'll send a since representative out to analyze your operation and provide a written statement on exactly how much time and money you're spending on JCL errors. And how much you could be saving with the TCL/SECK package. Still, some people are de-tined that these things out the hard work. rd way. To that we can only add, better

O. the buffer, is s. It

I then proceeded to search for the other variables to my system: the communications software package n the PC

The first issue is simpl of enabling the PC to com with a remote host. This be done by any of the ave

content of the synthesis consistent on a processor in it, it acts till as moter bent when connected to a PC berriere, I had to use a communication package to make the PC talk to remain, the PC issued direct commission to the modes in its own language to settlew the messages out of buffer.

Although 1 h

Although I had a system that sat-isfied all the functions technically, in all the functions technically, in till had one problem. As I mentally, in till had one problem. As I mentally, in till had the problem with the experience, and there I was, talking about dumb terminal emulation and insuing modem commands. It seemed that the end users and the proposed system came from opposite ends of in the property of the proposed software package that could be mod-sortware package that could be mod-sortware package that could be mod-

I had to find a communications software package that could be mod-ified and manipulated to meet my specific needs. I needed to customize the package for the proper modem commands and for an optimal user

commands and Dr. an optimal user commands and Tr. an optimal user charges and formel Easy tink Instant Mail Manager to be the one that I was Manager to the time on that I was the command of the command

e allows use ch to anothe offers ading a me either a fic sllowing ca age and sy or hard

ak service for the following rea-cu: ease of use, the ability to send lex messages worldwide, the abili-to interface with BM Professions Tice System (Profs) messaging sys-

if, since Anh executive are cur-tify using Profs to communicate th one another. As a second phase be completed early next year, the o systems — Profs and this mee-ting system — will be connected.

The final cost for the hardw-The final cost for the narowave and software needed is only slight more than my 4800 budget per stat association, including the shipping charges for the modem, cable, man ual and software. Of course, the su scribers will be charged a subscrip-tion fee by the telecommunications

network.

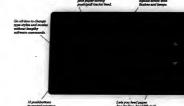
In or case, it is \$25 per year, plut
Loarges for the use of the system.

Easylink's rate is on the order of 10
cents per mission of connect time.

Anythink's rate is on the order of 10
cents per mission of connect time.

Anythink of 10 to 10
cents per mission of 10





This could be the most intelligent group of buttons ever assembled. You'll find them on the front of every Alps Dot Matrix. Printer. And you'll use them to do something most

printers can't.

Everything. Just push a

button on our front panel. You can change type styles and print modes,

load paper automatically, reprint data stored in the print buffer, even over-ride your software to do things it can't. All while using your PC for other work

at hand. But of course Alps printers are

more than a bunch of buttons. They're fast. The new P2100" prints

drafts at an amazing 400 cps, the

In Depth/American Bankers Association 77

I had to assume minimal computer nowledge on the part of users from ne initial stages to the installation eriod. I wrote a basic manual that years what all users have to know successfully operate the system. It words all stages from initial connec-ces of the modern and PC to trubble-on of the modern and PC to trubble-

nooting.

Even though the manual is very any to follow, I have made a prace of calling each state association of walking the staff through all thems for the initial installation.

Typically, this process has taken

Initially, this system was designed to send time-lependent messages on a daily basis. Now, in some instances, our executives are using it to forward ocuments and material that otherwise would have been sent by one of the overnight mail services.

anywhere from 30 to 90 minutes. In the beginning, all state associa-tion users had been given one of my business cards and 60d to tape it to the modem. "Whenever you have a problem," they were assured, "call this number."

ted to the system, the a pro

ed to use the different data services that are offered

unought up the "Need Belp" option and incorporated it into the mean. Whenever the users need help they can choose that option, and a Need Belp message will be sent to the Prometheus unit in my office.

This Belp message system the association.

Because of the urgent nature messaging system, I response requests for help on the my that I receive them and in

day that I receive them and in ma cases within an hour or two of the message arriving at my office. This system is more efficient if the telephone, because if several ers were calling at the same time, could not help them all.

We looked at two strategies for tting up accounts for the subscr s to this system: having all of the

Our management gave us the reen light in January, and the first ate association was connected the hird week of March.

hird week of March.

To date there are 14 state associaons connected to the system, and
se number is growing every week.
It have acheduled seven more to be
smected in the next two weeks. We
niticipate having most of the 52
atte associations connected eventure.

At this time the response has be couraging. There is also talk of ng another organization that is sed to the banking industry con-ed to the system. It has about

150 member locations. ng evernight corri

Initially, this system was designe to send time-dependent messages on a daily basis. Now, in some in-stances, our executives are using it stances, our executives are using it to forward documents and material that otherwise would have been sent by one of the overnight mail ser-vices. This new alternative is conve-nient, and the system delivers the material to the destination for a frac-

material to the destination for a irra-tion of the cost.

The cost of overnight mail services is a minimum of nearly \$10— often much more—whereas the Easylink charge is 50 cents per min-ute of connect time. For the kind of documents we exchange, transfer-ring files at 1,200 bit/sec. costs far

The need to exchange messages rapidly and economically extends well beyond the banking industry

well beyond the banking industry. This system answers that need through the use of personal comput-ers, which are found in most large companies today. The system enables end users to send electronic mail directly to spec fied targets as well as to notify the

fied targets as well as to notify the recipients of the incoming message. The beauty of it is that the mes-sages can be transmitted and re-ceived while the receiving PC is rur ning different software or even when it is turned off. The system or



P2000" at an almost amazing 250 cps.
They're versatile. They print
overything from letters and graphs
to six part forms and 16-inch-wide
spreadsheets. And they run with all
the most popular PCs and software.
Best of all, they're reliable.
Because Alps printers are among the
most solidly built at any price. In fact,
with normal care, they'll run fire

years or more without a breakdown.

And their precision-engineered print-

head will deliver over 200 million

characters of superb output. So don't just get a printer that does a lot of work. Get one that doesn't interfere with yours. An Alps

An Augs.
For our brochure and name of our neurest dealer, call (800) 828-ALPS.
In CA, (800) 25F872.
We'll show you how to push all the

right buttons.

A Honeywell Solution Center improved the flow of information in Buffalo's major city departments.

And the flow of cash.

Faced with shrinking revenues and a continuing need to supply high-quality services, the City of Buffalo, N.Y. looked for ways to improve the efficiency and productivity of its personnel.

The answer was the Solution Center from

Honeywell.

The city's data processing department knew that increasing access to information held on their large Honeywell computer could make end users more productive. So they installed key Solution Center products for query handling, reporting, file management, and spreadsheet analysis.

"The results were almost immediate," according to Bob Whelan, the City Comptroller. "We found new opportunities to improve our cash flow and the overall credit condition of the city. The addition of the Solution Center has definitely had a positive effect on municipal services and administration."

The Director of Data Processing, John Zebracki adds, "By maximizing access to our central files, we manage the use of PCs, and at the same time streamline operations in such critical departments as Fire, Police, Water, Engineering, Collections,

and Inspections."

Whether you're in government, services, or industry, a Solution Center from Honeywell can help improve efficiency in your organization. For more information, call 1-800-328-5111, ext. 9704 or write Honeywell Inquiry Center, MS440, 200 Smith Street, Waltham, MA 02154.

Together, we can find the answers.

Honeywell

AT performance at an XT price. Introducing the TeleCAT-286. \$2995. Complete.

With TeleVideo, you always settle for more. For some time, you've known exactly what kind of PC you could get with a mid-range budget.

But now, you can settle for a whole lot more. With the new TeleCAT-286; from TeleVideo.

It starts you off with IBM AT compatibility. 512K RAM. A 20MB hard disk. A 1.2MB floppy. And everything else you need. Like an Intel 80286 CPU that runs at ither 6 or 8 MHz. Even a highresolution 640 x 400 pixel monitor for text and graphics.

To make even better use of internal space, we socketed the TeleCAT-286 for one MB of RAM, and also included serial and parallel ports on the motherboard. As a result, we can still give you three extra expansion slots.

And we didn't stop there.

We've also designed more ergo-nomic features into the TeleCAT-286. Including sculptured ke caps on a high-quality keyboard. LEDs right on top of the three critical locking keys, so they won't get coursed up here. get covered up by overlays. And a footprint that's 28% smaller

than the IBM ATs. So you get more of your desk back, too.

There's a lot more we could say about the TeleCAT-286. But it's an even better idea to get your hands on it. So call I (800) TELECAT, Dept. 92, and we'll

tell you where you can try one. The TeleCAT-286, Our 20MB ersion is \$2995; 30MB, \$3495. For high performance at a low price, don't settle for less.

Televideo' Settle for more.

ms, Inc., 1170 Morse Avenue, Sunmyvale, CA 94088-3568 - (408) 745-7780

MANAGEMENT



Selling quality assurance

ng whether processes to reduce inserti-neory are in place. But how does one go about establish ag quality assurance, knowing that nanagement is likely to perceive the rocedure as just mother layer of over each that will increase costs, extend elivery times and, in their view, have title, if any, positive impact on the

bottom line?
We who have gray hairs (and others
of us with no hair) have heard this
management cry before and have quick
ty realized that the best strategy to use
when addressing management is a mar-

fit, usate culture and "goung ...
ing the presentation.
Make sure you have a clear and comsize understanding of what you believe
the quality assurance objectives are.
See SELLING page 96

DPMA recognizes Brophy

by Bested, A Landson

RATTORD, Cons. — Information protunes were not the First thing that come to
the year's bested on the Charles of the Charles of the
RATTORD, Cons. — Information protunes were not the First thing that come to
that year's tunes of the Date
Processor Management Association

To provide the Charles of the Date
Processor Management Association

To provide the Charles of the Calendar: Select-ed conferences, exhibitions, sem nars/100

ANALYSIS mation officer must divorce hin self of hard logic and coding — things of the MIS

world -- and con centrate on thing pertaining to the

INSIDE AMR appoints Air-

INSTANT

president/96

CEOs say information systems toughest to manage, most likely to face cost increase

By Dovid A. Ludium
Chief essecutive officers and other top
managers consider information systems
the most difficult corporate staff function
to manage, according to a survey of leaders of 71 large companies that was released last was

ers of 71 large companies that was re-leased last weep stems easily outdistance ther function systems easily outdistance other functions rated by difficulty of man-agement in the survey "Positioning Corpo-rate Staffs for the 1990s," conducted by the American Productivity Center and the consulting firm Cresup, McCormick & Pag-et of New Tork.

ormick and Paget.
To some top executives, one such effort ould he "littering all this data and mak-gl it something that's useful to line man-gement," Havac says.
Another step would be to make sure the formation systems manager has a broad nowledge of the business, which would

Technology Slightly Ahead of its Time.

Successful corporations grab large market share because they use existing technologies in effectively novel ways. They make life easier and better for their customers. They understand how DP technologies can be used to increase productivity and bolister returns on investment.

And they all have one thing in common: Past-moving corporations make sur their people are EDUCATED and INFORMED. Educated by some of the greatest minds in the DP field; people who have not only invented the technologies about which they lecture, but who have also helped major corporations with implementation

At Technology Transfer Institute, we provide you with the people, the tools, and the techniques to answer your company's most pressing and profit-related questions. Staying shead of the competition isn't easy, it's our business to see that you do. See for yourself at one of our "enlightening" seminars.

Give us a call for more information or registration. Find out why your competitors are using education.

Technology Transfer Institute

inta Monica, CA 90402-2899

HOWDY,

NEC INTRODUCES THE 8500 WITH BUILT-IN SOFTWARE TO GIVE VAR'S A SHOT AT THE BIG TIME.

NEC heard ya, Vartner! You say you need an exclusive? NEC heard you. The new NEC PC-8500 is yours and yours alone!

You say you need a powerful personal portable just asking to be packed with added value? NEC heard you, Vartner! You just described the 8500 right down to the ground!

You say you need software they're not selling at the dime store? When you see the new Expert Software Series we have for you exclusively, you'll know NEC's tuned in.

And you say you can use a little extra ammo in that jungle out there? Well, when we tell you about the national ads, co-op allowances, rebates, discounts, referrals, and high margins we offer you and you alone, you'll know for sure... NEC heard you, Vartner!

Of course, you're going to hear from us. We'll walk you through the hardware, talk you through the software and woo you with all our marketing support goodies.

We'll show you software cartridges loaded with the most



CaC

VARTNER!

There are two programs for insurance, one for real estate: built-in programs for everybody's business, plus a package of special utilities. All were created by leaders in their industry for professionals in the field.



And our in the field, the concept is already getting rave reviews

It's the kind of opportunity every VAR we ever talked to has been hollering for So just fire off a phone call and say "Howdy, Vartner!"...'cause we want to know you heard us.

For customer support call 1-800-NEC-SOFT, For additional Information, call 1-800-447-4700.



NEC PC-8500. NOW YAR'S HAVE SOMETHING NEW AND EXCITING TO SHOW, TO SAY, TO SELL.

Or write to:

NEC Home Electronics (U.S.A.) Inc. Computer Products Division 1255 Michael Drive Wood Dale, IL 60191-1094

NEC

Only Stratus has the fault tolerant technology today to support the MAP systems of tomorrow.



Stratus

AMR Airline Automation names Grossman president

Airline veteran takes control of DP sales

DALLAS — Arnold J. Grossman, a marketing and information systems veteran of four airlines, has been named president of AMR Airline Automation Services, part of the data processing service bureau recently spun off by American Airlines' par-

ground of by control of the sort company.

Groseman, 50, will oversee efforts of AMR Corp., American's parent, to sell to other airlines a broad array of data processing services of the sort that American has developed for it-

tion, a division of AMR in-formation Services Corp.,

Info systems tough to manage

they are even moving some traditional staff functions, including informa-tion systems, into the hands of line managers, although the greater pos-sibility of duplication is recognized. Executives expect that tr

ther steam, along with movements ward smaller corporate staffs, ore flexible organization and more one for the staffs and allocate resources. In the survey, information sysme is cited as the most difficult mention to manage by 23% of the resondents. Next is human resources, tet by 16%, followed by finance tith 14% and legal activities with 3%.

As one unidentified chief execu-tive puts it: "Top executives have been stung by MIS when development programs stumbled. Now they keep a tlose eye on MIS, which is the staff

action most insert to get one or so. Some executives "chearty say they void involve themselves more in tar-mation systems policy and over-mation systems policy and over-mation systems policy and over-matic systems of the policy through a sammittee of the board of directors one heasted by the chief executive. Age of the control of the control of the policy (in information systems as the unance Twenty-three persons asy that one control of the control of the three persons and the control of the three persons are the control of the three persons and the three persons are the three persons and three three persons are three three

Those who expect information steme costs to increase the fastest tribute the outlook to increase the section formation technology in marked, investments, telecommunications and litigation, as well as to furser automation of support services information systems. Information systems to the most of the section of the secti

ndents, human resources by 11% information systems and plan-

Information systems, however, is named as the largest of the staff functions, accounting, on the average, for 23% of the total corporate staff. Finance is the next house total corporate staff. staff. Finance is the next-larg



Burroughs

In Network Interface I. IBM terminal users are able to access faction programs readent on a Barrougha B566/000 or "A" series host m. Wath Network Interface II, Burrougha terminal users are able to a application programs readent on an IBM host system.

Joseph & Cogen Associates, Inc. Providing flexibility to your network.
Adding strength to your business. For more information, call or write
Joseph & Cogen Associates, Inc., 475 Alexis R. Shaman Blvd.,
Naperville, II. 60566.



Selling quality assurance

I an indivious as motivated up writy, market quality assurant he key to keeping his job. If eer is the key, market it as a ction that will eventually requ ry large staff and will have a

eved. Four, show i ince can affect you se. And, five, have

ch as program maintenanc runs and the like. Use a few ced rifle shots with heavy

he 3270 PC. Dr. Frankenstein's Latest Monster.

It looked great on the drawing board. Combine a 3270 terminal with a PC in a single box. Like magic. The 3270 PC.

But when it escaped from the lab, it turned into a monster. Its 3279 Master Control Program devoured most of the available RAM. And it slowed PC operations to a tortured crawl.

Now at last, the dreaded monster can be larned. With just a single plug-in board, PC-elevATor, from Applied Reasoning Corporation. How? By allowing 3270 and PC sessions to run independently of each other with separate

processors and memory, PC-elevATor provides an 80286 processor and up to 2 megabytes of on board RAM to run DOS applications faster than an AT. This leaves 3270 host sessions to run alone on the 3270 PC's 8088 CPU and with all its RAM (up to 640K).

With PC-elevATor, DOS applications can run as much as ten times faster. It is available with 8, 10 or 12.5 Mhz versions of the 80286 chip. And an optional 80287 floating point co-processor.

> If you have a monster on your desk, call us for help. Find out how the PC-elevATor can lift your 3270 PC out of the Dark Ages.



MANAGEMENT

Brophy stresses communications

19 1999

e "ghetto-type" Irish New York ty neighborhood that surrounded lumbia University, a competitive ignoornood that sur in University, a com ment full of "very

use ambition. He joined the U.S. Marine Corps when he was 15 but was discharged to lesing under age. He attended forordnan University, majoring in such and graduating in two years while spending nights on call at a coupital as an ambulance driver. There he met his wife, an emergency room nurre-

There he met his wife, an emergency room norms.

The common mental of the operations recoursed the control of the common services, where he first encountered taxolating machine. He nowed on the catasarial work, extending the risks are considered to the control of the control

Morristown, N.J., where he soon took over data processing.

Brophy says understanding the in-surance business from the actuary's point of view, in addition to knowing data processing, has given him an edge in his career. "It think that is que of the reasons why I succeeded," he

Commenting on the DPMA award, Travelers Chairman and Chief Exce-utive Edward H. Budd says that Brophy "is able to grasp the essential business issues and develop sound action plane to forge a synergistic co-alition among our business and tech-nical people."

Leaving Bankers National in the wake of a takeover, Brophy joined Travelers with a mission to develop standards and management controls for its enormous and innovative data traverers with a mission to develop standards and management controls for its enormous and innovative data processing operation. He was put in charge of DP in 1977. Last year, Travelers' revenue reached \$14.6 bil-

Integrating information process-ing is key to financial services, in-cluding insurance, Brophy says. The value of conventional office automalies in the opp s is on office co

cocus is on office communica-liak those workers, particul-integrating voice and data. "Our biggest accomplishms is that we have an extremely gree of automation of tras-processing systems, and it's ed in a true way — an integra-work," he says. extremely high de-ion of transaction is, and it's integral

Travelers has two data centers joined by Ti carriers, about 28 local-area networks in Hartford linked to a wide-area network, 85% of which is wired with cable. Independent agents are also tied into the corporate network, which is run on IBM mainrapse under IBM's Systems Networks.

retive particularly us re moved from a pro-m to a focus on cust

clitate the knowledge works Brophy says. "We're moving in world that has tremendous poten for making better decisions. You have to take a corporate sion — you have to have an en prise vision — to do it."

N STOCK NOW ATST



EDIT WITH POWER!

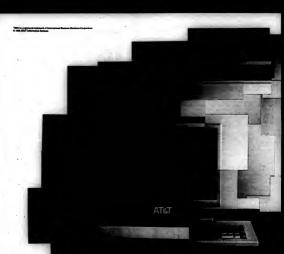
- e Rie-AD Main function

methods and accommodates any record length. Edit the entire dataset or selected records, based on

COMPUTEARE raph Road Mr 48010 400 1-800-521-9353

TELEX 23-5559





THE OTHER THREE INITIALS IN THE 3270 WORLD, AND

COMPLETE COMPATIBILITY.

That's what you get with the AT&T 6500 Multifunction Communication System. And you get it in both SNA/SDLC and BSC protocols.

Which means for the first time, you have a real choice in 3270 Systems. From a company every bit as solid as Big Blue.

SYNCH, AND ASYNCH.

The AT&T 6500 will tie together data and applications from up to three synchronous and 16 asynchronous hosts. Not to mention allowing PCs to work as terminals.

What's more, you can switch between synchronous and asynchronous hosts with a single keystroke.

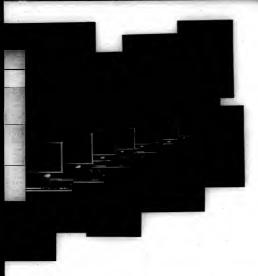
FOUR WINDOWS.

The 6500 lets you create up to four windows at the same time—into both synchronous and asynchronous hosts—and freely pass information among databases.

For example, an inside salesperson taking an order could access: the customer's credit status in one host; relevant inventory information from another host at a completely different location; and the order form to fulfill the request from yet a third host.

All on a single screen.

That kind of power means big productivity gains with no outlay for costly systems and applications development.



FIVE REASONS TO GIVE THEM A LONG, HARD LOOK.

PEACE OF MIND.

The 6500 incorporates AT&Ts experience with three previous generations of 3270 equipment. Plus the kind of service that smaller companies just can't provide.

And we make the pieces fit. Modular architecture assures you of smooth system evolution: upgrading doesn't even require a new communications controller; and you can easily reconfigure your system with almost no disruption.

That's what you'd expect from the company that makes "The Computers With The Future Built In."

AND VALUE.

Even with performance that matches or sur-

passes comparable IBM*equipment, the AT&T 6500 looks a lot better on your balance sheet.

So before you decide on 3270 compatibles, call your AT&T Account Executive, or simply dial 1800 247-1212.

We'll get you a lot to look at.





SEPT. 28-OCT. 4

1906 Society for Inform Management Annual Confer Dallas, Sept. 28 to Oct. 2 — On Priscilla Lorenzia, Conference ager, 1906 SIM Annual Confer P.O. Box 7030, Chicago, Ill. 506 National Communications rence Man

National Communications Forum. Chicago, Sept. 29 to Oct. 1 — Contact: NCF, 506 N. Lake Shore Drive, Chicago, III. 60611.

Pinancial Information Systems — The New Generation. Los Angles, Sept. 29 to Oct. 1 — Contact:

NIME Seminars, P.O. Dox 5727, Santa Monice, Calif. 90403.

Engia III, (February Serv.). Broo., Dec., D Rastitute on Artificial Intelligence and Expert Systems. Chicage, Sept. 20 to Oct. 3 — Contact: Joan Herrick, Seminar Coordination Office, Suite 415, 860 Boylston St., Chestont Bill., Mans. 62167.

Computer Ve Michael Banking Symposium. Columbus, Ohio, Sept. 30 to Oct. 1 — Contact: Compuserve, South Columbus, Ohio, Sept. 5000 Artington Centre Bird., Columbus, Ohio 44220.

Products '86. Dalles, Sept. 30 to Oct. 1 — Contact: Future Computing, inc., 8111 LBJ Preeway, Dalles, Tex-ns '78251. Flassacial Networks Workshop. Chicago, Oct. 1:2 — Contact: American Bankers Association, 1120 Con-tact. M. W. Workshopton, D. C.

Annual Corporate Elec-Payments Conference. New Jet. 1-2 — Contact: George C. White Papers, Inc., 96 Gor-st Ave., Upper Montelair, N.J.

Pirst National Decktop Publish-ing Trade Show. Chicago, Oct. 2-3 --Contact: Personal Publishing Show, P.O. Box 390, Itaaca, Ill. 60143.

Integrating CAD/CAM/CAE/ CIM Into Your Organization: Issues, Fitfalls, Payback. Boston, Oct. 2-3— Contact: Joella Nelke, Technology consect: Joesa Neske, Technology and Business Communications, Inc., 730 Boston Post Road, Sudbury, Mass. 01776. Also being held Oct. 9-10 in St. Louis, Oct. 16-17 in Orlando, Fla., and Oct. 30-31 in Los Angeles.

OCTOBER 5-11

Network Users Association's An-mual Fall Meeting, Denver, Oct. 6-8 — Contact: Teresa Robinson, Nation-al Trade Productions, Inc., Suite 400, 2111 Elsenhower Ave., Alexandria,

al Trace.
2111 Eisenhower Ave.,
Va. 22314.
VSAT Expe '96. Washington, D.C.,
Oct. 6-5 — Contact: Telestrategies,
1365 Beverly Road, McLean, Va.

"MITTER W. Weshington, D.C.,
"WAT There W. Weshington, D.C.,
"WAT There W. Weshington, D.C.,
"Wat There W. Weshington, D.C.,
"Wat The Weshington, W. Weshing

270 Littleton Road, Westford, Mass. 01886. Seyf eld Group's Conference on Deaktop Communications. San Francisco, Oct. 9-11 — Contact: Sey-bold Group, Saite 132, 20096 West-ern Ave., Torrance, Calif. 90601.

OCTOBER 12-18

Computer Alécé Manufacturing-international's 16th August Meci-ing and Technical Conference. San Antonio, Fexas, Oct. 14-15 — Con-tect: CAM-l, Inc., Suite 1107, 611 Ryan Plaza Drive, Arington, Texas 70011. — National and Pederal Office Actumation Conferences. Weshing-ton, D.C., Oct. 14-17 — Contact. NATION CONTROL OF THE ACTUMENT OF THE NATION OF THE ACTUMENT OF THE ACTUMENT OF THE NATION OF THE ACTUMENT OF

91778.
Opcical Publishing 98. Oct. 15-17.
New York — Contact: Learned Information, Inc., 143 Old Martino Pike,
Medford, N.J. 68055.
Scan-Teck 86. San Francisco, Oct.
15-17 — Contact: Automatic Identifi-cation Manufacturers, Inc., 1326
Freeport Ecoad, Pittsburgh, Pa.
16258.

OCTOBER 19.25

Central Prime Users Group Ninth Annual Meeting, Chicago, Oct. 19-21 — Contact: Deborah Morby, Compu-tronics, 4N165 Wood Dale Road, Advn, III. 60101. n. 60101. metron '86. Boston, Oct. 19-22



— Contact: Wang Laboratories, Inc., Mail Stop 1905, One Industrial Ave., Lowell, Mass. 1918.

Third-Party and Self Mainte-nance Conference. New York, Oct. 20-21 — Contact: Proof. & Sailivan. Inc., Department RE-250 E. 105 Pal-ton St., New York, NY, Oct. 20-20.

Contact. National Exposition. Contact. National Exposition. Supplementary of the Contact. National Ex-positional Expositions.

10116. Infomatics '86. Toronto, Oct. 20-23 — Contact: International Informa-tion Management Congress, P.O. Sox 34404, Bethesda, Md. 20817. American Production and Inven-tory Control Society 29th Annual international Conference and Tech-alical Exhibit. St. Louis, Oct. 20-24 — Contact: APCRS, 500 W. Annuadale

Falls Church, Va. 22046.

d, Palis Church, Va. 22046.
Siectronic Linkage of Internaal Marketa. New York, Oct. 21—
tact: Waters Information Ser.
s, Inc., P.O. Box 2248, BinghamN.Y. 13902.
sternational Symposium on
acheologies for Intelligent Sysa. Knoxville, Tenn., Oct. 21-25—
tact; UTK Department of Confers, 2014 Lake Avenue, Knoxville,
n. 37996.

. 83400. mith Annual Data Entry Man-ment Association Conference Equipment Exposition. Las Ve-Oct. 22-24 — Contact: DEMA, Summer St., Stamford, Cons.

venth Annual Computer Law tute, New York, Oct. 23-24— act: Mary Kilroy, Law & Busi-855 Valley Road, Clifton, N.J.

OCT. 28-NOV. 1

Contact: C.S. Report, Inc., P.O. Bux class J. Communication, P. 19541. Association for Association Francisco and Control State Communication, D.C., Oct. 29-31 — Contact Sun Anderson, APOLI, 87 Propaga Sc., Nov. 34 — Contact Allen F. Sc., Nov. 34 — Contac

2209. Fall Joint Computer Conference 6. Dullas, Nov. 2-6 — Contact: Stan-

Automated Manufacturing Exhi-tion and Conference. Greenville, 2, Nov. 3-6 — Contact: Allen P. cney, AMSS, P.O. Box 5616, Green-le, S.C. 29605. Electronic

and Telecommunications Systems. Boston, Nov. 3-7 — Contact: Omni-com, Inc., Suite 304, 501 Church St. N.E., Vienna, Va. 22180. Also being

Pocket the potentials of desktop publishing at COMDEX/Fall.



This year, COMDEX/Fall spotlights a technology that offers resellers and vendors of desktop publishing products and services vast new business opportunities. For vendors, desktop

publishing at COMDEX draws the tens of thousands of resellers you need to reach a global market. And resellers can find the vendors who sell the hot new hardware, soft-

ware, and systems products they need for their customers. At the COMDEX/Fall Desktop Publishing seminar, an exclusive one-day offering, reselfers will discover how to capitalize on the monumental business opportunities of this dynamic technology. See why desktop publishing will

grow into a multi-billion dollar industry in the next five years. And explore the technology itself.

Pocket the potentials of desktop publishing November 10-14. And set aside November 13 for the special one-day desktop publishing seminar For more details, send in the coupon now!

Put desktop publishing in my pocket ☐ Send me complete exhibiting inform Send me complete registration information I plan to attend the Desktop Publishing seminar

COMDEK/Fall '86

mber 10-14, 1986, Las Vegas, Nevada



NEW PRODUCTS

AT&T unveils PC imaging graphics tool

ATATY. Electronic Plentigraphy and Imaging Conter has unveiled a graphic boots and to allow prevented completes to graphic boots and to allow prevented completes as a special complete and the property of th

graphics board, allows users to put Treevision Images into an electronic alide above. The coftware costs \$150. The costs an ascentence of \$30 tost styles and sizes supplementing the selection of fents in Treevision Image Three Treevisions. Composite Video Adapt. The Treevision Composite Video Adapt. The Treevision Composite Video Adapt. The Treevision Composite Video Adapt. The Control of the Control of

CMS enters printer market

CMS, inc. of Costa Mesa, Calif., has en-tered the personal computer printer ma-ted with its 8 page/min laser printer. Laserpower is currently available for 32,796. The printer features a resolution of 500 by 300 dot/in. for high-quality text or graphics and offers a selection of ping-in parallel, serial or IEEE 480 interfaces for

parame, serial or IEEE 488 interfaces for compatibility with most personal comput-ers, a CMS spokesman said. The printer's memory capacity is 256K bytes, which is said to be expandable to 1.5M bytes to support full-page, 300 du/, in, resolution for graphics-intensive appli-cations.

Laserpower features six resident type fonts that are said to emulate most popular printers, such as the Diablo Systems, inc. 630, Epson America, Inc. FX-80 and IBM

Proprinter.

Additional type fonts that the pri-emulates are the Courier 10 font, inclu-landscape, bold and italic, and 12 inte-tional character sets.



to the vendor. Three optional font cards are available for the Laserpower. These cards provide Prestige Bite Iz, including bold, proportional spaced, Letter Gothic I2 and Prica IV type, the IBM graphics printer character ast, and the Daable BOS character set, include a desired and testerate the proposed provided presentation and testerate include a dual-bits sheet; feeder, paper flipper and multibles noted multibles and multibles noted multibles noted multibles noted from the proper flipper and multibles noted multibles noted from the proper flipper and multiples for the proper flipper and multiples flipper flipper and multiples flipper flipper flipper and multiples flipper flipper and multiples flipper flipper and multiples flipper flipper flipper and multiples flipper flipp

PC connector attaches remote micros, IBM minis via synchronous modem

CXI, Inc. of Palo Alto, Calif., recently in-troduced the PCOX/5250 Remote, which allows remote personal computers to con-nect to IBM System/34, 36 and 38 minicomputers via a synchronous modem.

The connection emulates the IBM 5251
Model 12 or 5294 Control Unit, enabling it
to perform as IBM 5251, 5291 or 5292 dis-

play stations, providing concurrent act to up to nine host sessions, a CXI spot man said. man suc.
The product also enables serial or paraliel printers attached to a PC to act as hostaddressable printers, such as IBM 8256 dotmatrix, 8224 and 8225 printers. Because a
hot session can be used as a printer session, up to five printers can be driven simultaneously. No changes to the host or
PC software are required, according to the PCOX/5250 Remote is also available with PCOX/5250 Pile Transfer, which en-ables users to upload or download files be-tween the PC and the host with translation to and from a number of commonly used PC data types, including ASCII. The file transfer is also compatible with IBM System/34, 36 and 38 file transfers. In

addition, the connection is compatible with software written to the IBM 5250 application program interface.

Available now, the product includes an interface board, modem cable and terminal emulator software. The POOX/5250 Re-

eminator software. The PCOA/D200 Nemote with file transfer sells for \$745; without file transfer, the price is \$645. Sold separately, the file transfer package costs \$150. CXI also offers a local 5250 em package called POOX/5251 Twin X.

The Common Sense Data Network



Develcon

& Services/184 Microcomputers/100

& Peripherals/118

SOFTWARE & SERVICES

diffician features are terminal sug-ric code, which enables a block-de terminal to transmit an entire sol of data with a single inystroke, thation of system call external de-cation files for Paccal- and Portran-sed programs, an extended I/O sys-nes to log on to any available termi-on the system.

The operating system runs on any stel 8066, 8088, 80186, 80186 or 10286 microprocessor. The Irmx 86 operating system cuts \$6,000 for the initial license

Intel, P.O. Box 56065, 3065 Borers Ave., Santa Clara, Calif. 96062.

elaconust, Inc. has introduced a prehensive call accounting soft-e package for 100- to 2,000-sta-telephone networks that require rts for traffic analysis, cost allo-mailies billing. macytis, cost allo-man and reseller billing.
The software is said to be capable collecting private branch ex-rage data from multiple sites via note polling. It provides cost allo-tion reports on station, depar-nt, division and company la-

and also generates detailed and sum-mary cost breakdowns by project code for billing purposes. It operates on AT&T's 7300 and

it optraces on ALGL 3 too and SBI processors.

The price for the 100-station network software begins at \$1,995. Software for the 2,000-station system costs up to \$16,000.

Telaccount, Suite 102, 4470 Redwood Road, San Rafael, Calif. 94903.

Systems Effectiveness Associates, Inc. has introduced Ramend, computer-aided engineering software said to bridge the gap between the company's reliability and maintainability analysis software and popular computer-aided design (CAD) systems.

numbers, quantities, reference designators and temperature data extracted from CAD systems and transfers this data to the firm's family of inte-

Ramcad runs Digital Equipm Corp. VAX and Microvax II pro sors using the VMS or MicroVMS erating systems and is licensed \$2,000. Systems Effectiveness Associates Vernon St., Norwood, Mass

ed its Custs

The Cus em, integrated with ship roicing modules, is said ping and invoicing modules, is said to create an information network be-tween automotive companies and their suppliers. The software allows their suppliers. The software allows the user to retrieve releases from General Motors Corp., Ford Motor Co. and Chrysler Corp, through the use of telecommunications. Castomer/Supplier Communica-tions for the IBM System/36 is priced at \$15,000, and for the System/38 at

\$28,000. Wright & Associates, 44567 Pine tree Drive, Plymouth, Mich. 48170.

Lawson Associates, Inc. has announced Release 4.0 of Pinstripe Payroll, the company's business applications software for use with Blystem/38 and Burroughs Corp. system/38 and Burroughs Corp. sys-

ms.

Peatures of Release 4.0 are said to clude multiple automatic direct deseit to employee banking accounts, satisple history inquiry facilities to sployee data, on-line generation of anual check data, garnishment decicious and payment-ln-kind pro-

cessing.

Pinstripe Payroll Release 4.0 for
the System/38 costs \$20,000; for Burroughs systems B2000 to B7000 and
A Series, it costs \$34,000, and for the
B1000, it costs \$17,000.

Lawson Associates, 2021 E. Hennepin Ave., Minneapolis, Minn.

has announced Version 7.1 of PACS/ 28 RPG-III for closed-loop manufacturing

8 EFG-III for closed-loop manufac-ering resource planning. The program is adaptable to both iscreet and repetitive manufactur-ing, according to the vendor. PACS/38 is said to incorporate ackflush, or automatic inventory

ackflush, or automatic inventor coord adjustment by operation. Other features of the program in use options in on-line master sched ling, manufacturing resource plar ing and pegging of load source vi

capacity.

PACS reportedly uses a thresholdsetting technique that allows users to
tune system response time and to tailor system logic without program-

A license for PACS ma cost accounting and order proce is \$105,000.

Management Resource rartners ite 215, 209 W. Central St., Natick

No other have generated data Nobody knows how

good a mainframe is better an the people who actuexperts, the people —a leading who use Burroughs main- search firm.

That data doesn't come ally use it. And among those pro Research Corporation -a leading independent re-

In Datapro's annual survey of mainframe users, from us. It comes from Data-pro Research Corporation ranked first in more categories than Burroughs—eight altogether, including the big one: overall custom-er satisfaction. And that's

not even counting our sec-onds and thirds.

But Burroughs not only outperformed the competition, we outperformed ourselves. Improving our rating in 23 categories over last year. Clearly this says some-

thing about the quality of our

That's why of all the data our mainframes have generated, little has made us prouder.





EVEN IN OUR EARLIEST DAYS, OUR EMPLOYEES EXHIBITED LEADERSHIP.

Four score and seven years from now, will ompany that sold you your business software ound to fix a problem? Promises don't count. You have to look at a

Promises don't count. You make the sub-main meany's actual history.

At McCommack & Dodge, we're in the que position of having two histories, both dis-guished, to submit for your consideration.

One is our own, duting back to the 1960's,

No American company has a better history of stability than Dun & Bradstreet. But this proven stability together with the proven technology of McComack & Dodge, and you have something unique in the software inclusive.

A supplier whose strength eases your mind when you worry about the years ahead. Even if it's four score and seven of them.

M*Cormack & Dodge

EVERY DEPARTMENT RUNS



Introducing the New MICROLINE 190 Plus and 290 Series.

These new printers are so fast they work in OKIDATA Minutes. Shorter, faster, more efficient minutes. The same work that took 60 seconds to produce with other popular printers, now takes as little as 43 seconds. With the MICROLINE 190 Plus Series they'll

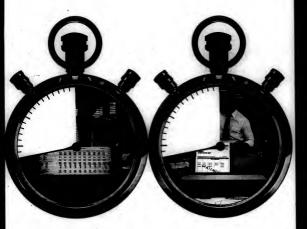
print urgent memos and reports at 200 cps. Important letters at 40 cps. More quietly than other printers. And for those requiring even

higher performance, the new MICROLINE 290 family offiers Utility speeds of up to 400 cps, Near Letter Quality at 100 cps — and does it all with graphics and text in 14 different looks. Impressive? You beld But whom you need a printer with more than that.

Better paper handling, for example, You can better paper handling, for example, You can

feed these new printers almost any type of paper made. From the bottom, top or rear.

FASTER ON OKIDATA TIME.



They'll like the speed. You'll like the reliability.

And, they're completely compatible with the IBM PC.

Hint PC.

But, best of all, the new 190's Plus and 290's are OKIDATA printers. With all the durability and reliability that OKIDATA's famous for.

Put your company on OKIDATA time. Start every department printing what once took 60 seconds, in an OKIDATA Minute.

To find out more about the new 190's Plus and 290's, call your OKIDATA dealer. Or call us at 1-800-OKIDATA.

Evaneville Data Processing Corp. has introduced GENCS1, a generator of Cobol code for use with Digital Equipment Corp.'s Cobol 81 or VAX

seriess Seftware, Inc. has an-ced Balease 6.2 of its on-line, inc Custemes Order Process-pates for IBM mainframes. The m includes an electronic trans-serface module for companies office orders from point-of-sale to.

Inufactured or ware. The system may be ilocation environment

Release 6.2 costs from \$119,000 to \$150,000, depending apon the num-ber of optional modules that are re-

American Software, 443 E. Paces Perry Road, Atlanta, Ga. 30305.

SPSS, Inc. has added Co ructured query language rates interface to the or PSS-X data analysis and for

The UENCS! Is said to be capable of producing a Cobol source file that can be compiled for screen maintenance of files or tables. It builds and maintains indexed files, such as customers, tables, products and schedules. e deci-

The Cobol program created by ENCSI opens as indexed file for I/, and if the file does not already ext, it will create one. The GENCSI code generator is riced at \$1,980.

Evanarille Data Processing, 1010
Weinbach Ave., Evanarville, Ind.

Utilities

Telesis System ced the CV Con

data transfer utility.

The CV Compatibility Option is said to permit printed circuit-board drawings to be transferred between Telesis and Computervision Computer-Aided Design and Drafting 4 and

to the vendor.

The CV Compatibility Option crestee a formatted ASGII file that can
be transferred to a Computervision
system via magnetic tape.
Available in October, the CV Compatibility option costs \$7,500.
Telesis Systems, Two Omni Way,
Chelmsford, Mass. Ol824.

Macro 4, Inc. has introduced the Foreman forward recovery manage-

nt system.
Foreman is said to offer the me

tion.

For users of software products such as Cincons Systems Inc. '8 Marian VAMA data set integrity as well as integrity for on-line development. The crystem recovers any number processing journal files created by CCS during the dealty on-line season, according to the vendor, according to the vendor. CCS during the dealty on-line season, according to the vendor to secure tops or disk file. It also incorporates a self-checking routine. Therement runs on IBM 570 maintragement are on IBM 570 maintragement.

The management system leases for \$150 per month. Macro 4, Millbrook Plaza, Mount Preedom, N.J. 07970.

Belp/28 Systems, Inc. has an-sunced Design Maker for IBM Sys-m/38 computers. The instant prototyping feature of seign Maker lets users see what the stem will look like before any pro-summing is done, according to the

Design Maker also is said to allow programmers to create and present both screen and design reports in a matter of minutes using an interac-

matter of manusco-tive editor.
Additional features of Design Maker allow programmers to speed up design with line move, block move and save and copy functions, accord-ing to the vendor.
Users can also simulate designs for

Design Maker carries a price tag of

B1,096.
Help/38 Systems, 210 Baker Technology Plaza, 6101 Baker Road, Minnetonka, Minn. 56345.

With one Hayes Transet 1000 vou can do three things at once.



Think

Communicate While receiving electronic



Print

We call it triple teaking." Transet 1000 helps your productivity, by allowing you to perform three separate computer teaks. Simultaneously. No more waiting for one teak to be completed before you can begin another. And no more wasted time!

more wasted time!
Transet 1000 keeps working for
you—even when your computer
is turned off. Because it has its
own independent memory, Transe
1000 can serve as an electronia
maithou. Your files and incoming
messages received through your
modem retains stored overnight,

or whenever pou're away from the office. When you return, you can print out your mail without turning your PC one. Or, read it on your PC once and print out only selected messages. You can even reed your mail from any remote PC or serminal with a modern. Before now, you would have had to buy several add-on devices to do buy several add-on devices to do

Say yes to the future

all this. And that could be contly. But no more. Transet 1000 does it sill—for a superisingly low price is sill—for a superisingly low price in the country of the country

Training software

sion 6.0 of Phoenix, a computed training system, is out from yetems international, inc.

The Phoenix authoring system, Ease, includes word processing capa-bilities for setting margins, indenta-tion, tabs and word wraps, as well as for editing and changing, according to the vendor.

enix for IBM mainframes costs per month for a one-year li-

al Systems International, Goal ms Building, 5455 N. High St., abus, Ohio 43214.

course. In sine course units, users reportedly are given an overview of how
the securities industry operates.

In sine course industry operates.

In sine course industry operates.

In sine course in sine different kinds of securities and sinedifferent kinds of securities and sinedifferent kinds of securities and sine
stocks, bonds, funds, mortgage loan
pook, options and futures.

Later units discuss the jobs of the
Later units discuss the jobs of the
Augustian
what is involved in the acquisition,
movement and disposal of securities,
scording to the vendor.

ne Securities B mae fee is \$4,319. oal Systems International, Goal ems Building, 5455 N. High St., mbus, Ohio 43214.

printed-circuit board design.
Quick Circuit Version 3.0 includes
a Library Page, said to be designed to
save time by providing a selection of
already drawn, commonly used com-

Other features of Version 3.0 in-ide memory compaction, up-to-the-cond reading on the assount of emory available for completing lay-te and a 5cd ford feature that lets to and a 5cd ford feature that lets users select grid-size spa 0.001 in. to 1.0 in. Quick Circuit operates Computer, Inc. computers. s on Apple

Bishop Graphics CAD Systems P.O. Box 5007, 5388 Sterling Center Drive Westlake Village, Calif. 91359

ed its Timepiece project nt software package for rsonal Computer and com-

ment of several projects using in pool of resources that can

tracted across the projects.

The software automatically calcutes a project's critical path, slack
me and ending date as information
entered, according to Communica-

Communication Dynamics, Suite 200, 7300 S.W. Hunziker, Tigard, Ore. 97223.

Bran Boftware, Inc. has intro-duced Bingo, software that is said to aid business-to-business advertisers in tracking reader response inquiries to their advertising and publicity re-

see. Blingo is said to provide informa-n dealing with orders received ainst finquiries, which publications nerate more responses and which pes of promotions develop more

by publication, product, campaign and inquiry type.

The system also provides on-line inquiry sort and retrieval capability, according to the vendor.

Bingo runs on the IBM Personal Computer, Personal Computer XT, AT and compatibles. It is priced at

Bran Software, 200 Motor Pkwy.,

Boeing Computer Services Co. as released Version 3.00E of Boeing alc, the company's three-dimen-M P Cor

chines.

Version 5.00E is said to work with
the containing up to 16,000 rows,
500 columns and 16,000 pages.
rsion 5.00E features include
are matrix file compression
d to reduce memory requirements
one-third — greater caractiv and

The software is said to read and write all versions of Lotus Development Corp's 1-2-3 and Symphony work files.

Boeing Cale priced at \$399. Boeing Comm Version 3.00E is ter Services, 7 ma, Va. 22180.

me, wher reportedly allows the visualize the implications of hinds and linear data. Graph include linear-linear, log-log, lair and high-low-close, ording to the vendor, data may resembed by five types of er-n curves and four types of er-

An unlimited number of data des and data lines may be com-sed on one graph. Grid lines can be comatically generated. Grapher runs on the IBM Personal supputer, Personal Computer XT, or compatibles. The program is

Computer, Penno... AT or compatibles. The propried at \$199. Golden Software, P.O. Box 281, Golden, Colo. 80402.

Pick Systems has introduced Accs/Fiet II, said to provide full graphics capabilities that allow the transformation of number stacks into ansformation of number stacks into narts and graphs.

Acce/Plot II allows the user to re-ieve data from any file and format in simple bar, line or pic charts, de-illed stacked bar graphs, scatter di-prams and pic charts with high-phied segments, according to the

The package features automatic scaling, labeling, line and bar pattern and color selection as well as the abil-ity to interface with Pick System's

electronic apressance: program, Compushet+. Accu/Flot II operates on the IBM Personal Computer XT, Personal Computer AT and compatibles such as Compag Computer Corp.'s Plus and Designe and the AT&T Personal Computer 6300. Accu/Plot II carries a price tag of

Pick Systems, 1691 Browning, Ir-vine, Calif. 92714.

Software languages

STSC, Inc. has released Version 6.0 of the APLPhas application de-velopment system and APL interpret-er for personal computers. Peatures of Version 6.0 include larger APL variables allowing for the

manipulation of more data in the APL work apace and support for the Nawlett-Packard Co. Lanerjet Plus

y drivers that provide APL cters on the IBM Color Graphics

m 6.0 of APL-Plus is avail Version 6.0 o able this month

According to STSC, the system is priced at \$696. STSC, 2115 E. Jefferson St., Rock-ville, Md. 20662.



When you need data security A.J has the solution.

Afs new 1200 and 2400 bps moder give you the foolproof security feature—callback.

The AJ 1212-AD3H and AJ 2412-AD3H offer callback security. After a caller enters a correct code sequence to log outo the modern, the modern drops the line and calls back one of 25 designated numbers stored in nonvolutile memory. These new moderns stop intruders before they

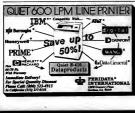
get to your computer! Both moderns are Both moderns are Hayes "AT" compatible, provide a full featured memory dialer, and include other security features—answerback, rwolevel passward protection, selective number display, downline loading, and automatic logon.

And the new AJ Data Safe em offers the ulcimate security ature-DES encryption. Sand the coupon for details.

ANDERSON

Please and FREE information	•
the following:	
DAJ DIS-ADM (CHO bys)	
□ AJ 243-AD25 (2400 bps) □ AJ Decr-Safe (DES encryption)	
a Digital and (DES mary) and	
1	1
100	

į	Company	
1	Aldres	
ı	Ciry/Seas/Zep	_



Software utilities

Decision Graphics, Inc. has intro-ced ACL/PC, a computer-aided de-m Autocad/intergraph Transfer chage for Microsoft Corp.'s 342 8-based series. ased systems. send is a product of Autodesk, and Intergraph is made by Inter-

e, and interpreparable for any force and interpretarion between Autocad 2.0 rewing interchange Piles and interraph Design Piles. ACI/PC features prevention of all drawing entities inversion of all drawing entities in a property of the prevention of all drawing entities in the prevention of the preve

h as automatic control file genera-n, cell library handling, specifica-n parameters and support for el-

The ACI/PC package is priced at \$3,500. Decision Graphics, Suite 1622, 555 Sparkman Drive, Huntsville, Ala. 36816.

Software data base management systems

Palentir Suftware has announced Windows Pilor, a data management system for Microsoft Corp.'s Win-

ndows Piler is said to allow the soft Windows user to create m entry forms, perform calcula-mental communication of s, sort on any or es the user to combine grap The software can si es with data

NEW PRODUCTS/MICROCOMPUTERS

Windows Piler costs \$145. Palantir Software, Suite 100, 12777 Jones Road, Houston, Texas

arketing Software, sed the Prospect List r the n

enu can create, edit and print per-nal letters, labels, follow-up re-nders, telemarketing question-ires and other desired hard copy. I records in the data base can be inand sorted in a variety of

The program operates on the IBM ersonal Computer, Personal Computer XT, AT or compatibles with 12K bytes of memory.

The Prospect List Manager costs

Practical Marketing Software, Suite 601, 15107 Maderia Way, Ma-deria Beach, Fla. 33708.

Software enhancements

D. L. Hiller & Associates has re-used Factory Data Manager Ver-ica 2.0.

Practory Data Manager is said to be a labor data collection system that can be praced or hair specific work. The same has praced to the specific work of the

The Factory Data Manager is pro-vided on a 12-MHz IBM Personal Computer, Personal Computer AT or compatible or on a software-only ba-

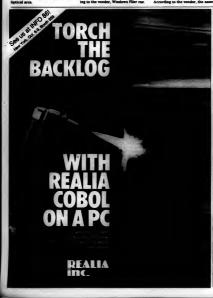
The Factory Data Manager costs \$4,996. D. L. Hiller & Associates, 14536 Is-land Drive, Sterling Heights, Mich.

Wilcom Products, Inc. has intro-duced 83000, a software package for IBM Personal Computers and compa-tibles said to enhance the automated testing capacity of Wilcom'a Smarts

test system.
The S2000 program allows the PC user to communicate with Wilcom's T328 Master Test Line and Control-T328 Master Test Line and Control-lers situated at remote locations within the actwork. With the S2000, the information required to establish the testing data base can be down-loaded to the T328 Master Test Line and Controller from a F0 terminal. The S2000 provides the ability to cal-culate completion of testing times. The S2000 products pt both of the S200 products pt both of the The S2000 products pt both of the The S2000 products pt both of the S200 products pt both of the S200 pt both of the S2

Communications

Prometheus Products, Inc. has in-troduced Promodem 12008/2, a half-card modem that plugs into an expansion slot of the IBM Personal Computer and compatibles. The modem



ON NOVEMBER 12, WE FOCUS ON MICROCOMPUTING

Not long ago, no one outside the computer industry had ever neard of a micro or personal computer. Nor would anyone have guessed that micros would be found in abundance on deaks all over the winness world.

business world.

The fact is, micros have taken off. And they may well have the brightest future of any segment of the industry. So where will they take

Our November 12 issue of Computerworld Focus will provide some answers. With coverage of the mitor field from supermicros to lap-top computers, peripherals to storage, all the way to service and support. We'ill even give inside information on the future product paths of popular vendors.

Then we'll zero in ou desktop

In November we'll devote our special section to one of the newes and most productive applications for the micro — desktop publishing. We'll look at what's available, what's still missing, and where the market is gioing.

We'll find out which products are best suited for what types of applications, and which vendors are doing what. And finally, we'll learn just what it would take for an MIS manager to make a commitment to desktop publishing.

Reach the people you really want. The people we'll reach are the people you want most. 128,000 paid Computerword subsorbers. Plus the search of pees-given mark

And thousands nore attending Comdex in Las Vegas.

So if micros are your business, you can reach your audience effectively — and efficiently in the November 12 issue of Focus.

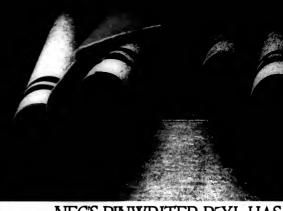
For more information, contact Ed Marecki, Vice President/Sales, Computerworld Focus, 375 Cochituate Rd., Framingham, MA 01701-9171, (617) 879-0700. Or call your local Computerworld sales

one: Hovember 12 - Clooks October 3

COMPUTERWORLD

We put the hottest issues of the day in focus





NEC'S PINWRITER P5XL HAS

Our Pinwriter 'PSIJL printer has changed forever the way people look at dot matrix printing it's the first 24-pin dot matrix printer to use a letter-quality multistrie film ribbon—the same ribbon used in typewriters and letter-quality printers, such as our Spinwriter. So for the first time in computer history there is a printer that honestly does everything. A printer that produces important letters and documents with crisp, black, true letter-quality printing. But with all the speed and graphics capability dot

Dear Mr. Black:

matrix printers are known for.

Fast, black letter-quality
reason many people will bry:

plenty of other good reasons. In

Fast, black letter-quality printing will be the primary reason many people will buy a P5XL printer. But there are plenty of other good reasons. In fact, it's the most versatile printer ever created for personal computers.

It can use an optional ribbon to print seven other colors plus black. And it has the best graphics resolution of any impact printer you can buy, due in part to our advanced 24-pin printhead. Plus it can print more type faces automatically than any other dot matrix printer. And it's quiet and fast.

You can also expect a P5XL printer to turn out millions of characters before it will need service because it has the highest reliability rating in the industry. And there's a nationwide network

Computers and Communications The charmons and surpensive designs are regionard trademarks of Binner and Smith Inc., used with percentage of the charmon and surpensive designs are regionard trademarks of Binner and Smith Inc., used with percentage of the charmon and surpensive designs are regionard trademarks of Binner and Smith Inc., used with percentage of the charmon and surpensive designs are regionard trademarks of Binner and Smith Inc., used with percentage of the charmon and surpensive designs are regionard trademarks of Binner and Smith Inc., used with percentage of the charmon and surpensive designs are regionard trademarks of Binner and Smith Inc., used with percentage of the charmon and surpensive designs are regionard trademarks of Binner and Smith Inc., used with percentage of the charmon and surpensive designs are regionard trademarks.



of NEC Customer Service Centers to take care of maintenance.

printers available.

Now, while the Pinwriter PSXL performs a little black magic, you won't have to go in the red to buy it.

The Pinwriter P5XL is the latest addition to the most advanced and extensive family of 24-pin See it at your dealer or for an information package that includes actual print samples, call 1-800-343-4418 (in MA 617-264-8635).

Or write: NEC Information Systems, Dept. 1610, 1414 Massachusetts Ave., Boxborough, MA 01719

> NEC PRINTERS. THEY ONLY STOP WHEN YOU WANT THEM TO



tousty.

It is also said to be ideal
r Omninet actworks with a
ixture of workstations, instating IBM FOL and Apple
temputer, inc. Apple IIa.
Available in the fourth
arter, Constellation File
rwice is priced at \$495 per

Corvus Systems, 2190 Corvus Drive, San Jose, Calif. 95125.

Printers/Plotters/ Peripherals

etrabyte Corp. has an-icred Mini-Printer-24, a ol digital panel printer. he printer is said to in-ice to any Centronics a Computer Corp. parallel and produce dot matrix

stures include a built-in

erator. The Mini-Pris ced at \$190. Taunton,

Board-level devices

IBM has introduced its Ensaced Graphics Adapter super Card for the IBM resonal Computer. The Enhanced Graphics

ane cananced uraphics dapter Jumper Card sup-ness infowindow Dis-ay by providing an exter-i synchronization from the splay that allows the text of graphics stored on an M PC to overlay the video yred on a videodisk player.

or overlay the video to overlay the video to overlay the video to the feature connect of the video the feature connect of the video the feature connect to the PC's general-purveint products to the PC's general-purveint products to the PC's general-purveinterface bus adapter. The Enhanced Graphica lapter Jumper Card is iced at \$40.

IBM, 1133 Westchester

Auxiliary equipment

atapeist Corp. has in-seed the Starlift Sys-which is said to allow to add terminals

ogh the addition of ter cards in the CPU racter sets of actor sets of al Computer provides for

coording to the vendor, Startift adapter card in-es an 8-MHz CPU and elr 512K bytes or 1M byte

A Starlift System, consist-ing of a 60M-byte hard disk and 9.68M bytes of memory, is priced at 1,837. Datapoint 0

COMMUNICATIONS

, Inc. for Digital Equipment (VAX VMS to IBM VM con

3.0 include a shared router; a network monitor utility that shows network traffic, the configuration of links and servers and CPU utilization; rvers and CPU utilization, proved network printer pabilities; and additional pport for Vaxclusters. Just runs under VMS Ver-on 4 and is priced by VAX odel. Just license fees age from 86,000 to

Joiner Associates Box 5445, 3800 Reg Madison, Wis. 53705.

With Racal-Vadic's 9600 VP Dial-Up Modern. dependable high-speed error control only retransmits bad data blocks-and nothing else. The 9600VP worn make Herman Melville would

have loved it. With a 9600VP high-speed modern, he could have sent his Moby Dick manuscript-all 12 mil-lion characters-from his PC to his publisher in less than half an hour, error-fre With a 1200 bps modern, the same trip would have taken more than 2 is hours.

Alas, the 9600VP mived about 150 years too late for the seafaring author. But not for companies that need to pilot whale-size files through the switched phone network, where you need a lot more than speed: you need performance. No other dial-up modern

performs like the 9600VP. It cruises at 9600 bps and precisely slows down and speeds up as line conditions vary

RACAL

puter and communication software you're likely to find on a dial-up network today And the 9600VP not only costs less to buy but saves a lot of money in line charges and personnel time. So it work cost you an arm and Captain Ahabs other leg.
So call Racal Vadic today at 800-482-3427, and ask for

waves in your existing net-work, either it works in sync and async, with PCs and ter-

minals, with 212s and 103s.

In fact, it's made to work with every kind of modern, com-

at 800-482-3427, and ask for a free demonstration. Then see why thousands of 9600VPs are already out there moving year files through he real world.

Racal-Vadic

Sinware, Inc. has announced SIM/NTO, a host-based software product said to eliminate the need for SIM3278/VTAM users to in-stall IBM's Network Termi-nal Option (NTO) on the com-munications front-end

processor.

SIM/NTO runs as an MVS/
VTAM application in conjunction with Simware's
host-based protocol converter, SIM3278/VTAM. It is said to enable all AS-II terminals and personal

computers currently sup-ported by SIM3278/VTAM to communicate asynchronous-ly over EP lines with MVS/ VTAM applications. The price of SIM/NTO is \$7,500. Simware, 14 Concourse Gate, Nepean, Ont., Canada K2E 786.

Multiplexers/Moderns Prentice Corp. has intro-duced the P-9600FF, a 8.6K mal bit/sec. modem for use on

multipata networks.

The 7-800079 is said to of. 1,000,000 of 1,000,00

It also features rates of 7.2K bit/sec. and 4.8K bit/ sec. to accome

Artel Con...
Corp. has announced to...
\$270 multiplexers now have
\$2-11 telephone jacks.
The R2-11 Jacks are built
into the terminal ports of the
Stindine Terminal multiplexand ordinary telephone

wire can be used instead of coaxial cables to connect ter-minals to the multiplexer, the vendor said.

An eight-port coaxial or BJ-11 pair terminal multi-plexer is priced at \$700; the 16-port multiplexer costs \$1,850.

Artel Communications P.O. Box 100, West Side Sta-tion, Worcester, Mass. 01602

Local-area networks American Photonics has introduced its ELSOO Ether-net Expander Model 2 that serves as an interface be-tween a standard Ethernet transceiver cable and optical

cable.

The RL5000 is a fiber-optic system said to expand the
range of Ethernet workstations or file servers to 3 km
from the network, without local or remote repeaters.

It is said to eliminate the signal delays and cabling of remote repeaters with associ

Auxiliary equipment

Code 39.

The products have the following prices: 9510, with wand powerpack, costs \$495, 9511, with display and wand powerpack, costs \$405, 1700 Keyboard costs \$225, 1700 Keyboard costs \$225, 1919 Satellité Wand Station costs \$195, and the 8635 Turbe Bar Code printer costs bo Bar Code printer co \$4,495 or \$4,895, dependi

on the print head.
Intermec, P.O. Box 360502, 4405 Russell Road, Lynwood, Wash. 98046.

SYSTEMS & PERIPHERALS

Processors

Processors

Matrox Electronic Systems, Inc. has announced its
VIP-1824 single board for real-time image acquisition and display for Motorola, Inc. VMEDon systems. Inc. Systems of the second of the of th

custom image processing ftware. The VIP-1024 has 1M byte sed on page 117

k Across nutes Flat.

At \$395 others have found its price easier to match than its performance.

if you want maximum quality at minimum cost, you need to put the resources of ITT Quine on your deaktup. For more information, call (800) 223-2479. ITT Quine Corporation, 2350 Quine Drive, San Jose, CA 95131.

Telex: 40970122. TWX 910-338-0232.





Continued from page 118
of random-access memory. Each image in the frame buffer uses 8 bit/pixel.
The VIP-1024 board costs \$2,996.
Matrox Electronic Systems, 1055
S. Regis Bivd., Dorval, Que., Canada,
389 274.

Data storage

DISTA STOPPING
BEGING CONCEPTS, III. As introduced the YMERI Flas parallel transfee disk (PTD) storage system for each kill (PTD) storage system for the YMERI Plan is said to effer a
WHAT Plan is said to effer a
Bib bil/nec. for data transfer of up of
rack-mountable disk processor, two
170-by 233-men standard-size YME
board assemblies, a parallel transfer
disk and a device of eiver for the Unix
disk and a fewter of eiver for the Unix

disk and a device driver for the Unix operating system. Italians the Pulisas Lid. MiSSOA PTD, transferr data to and from the MiSSOA with the paral-lel channels, each at a 156M bifuge-tion of the Company of the Company of the Company of the Company parallel data runnisfers at 1M and 5M bifuge-, respectively. Plus system with one MiSSOA PTD costs 456,700. Storage Concepts, 3188-6 Airport Loop Drive, Costa Mess, Calif. 29255.

Terminals

Contenting, but introduced the Codesians, but introduced the Codesians, but introduced the Codesians, but introduced the Codesians of the Code

es with an amber or green

The GT 100 Graphics Upgrade Kit a \$1,095. lodonics, 18001 Englewood Drive, leburg Heights, Ohio 44130.

Ann Arbor Terminals, inc. has added the Model AMB-0000 to its line of XL series terminals. According to the vendor, the Model AMB-0000 incorporates the features of the company's Ambassador XL while adding the shillity to select either 20-mA current loop or 88-422 interfaces through the use of active cables connected to the unit's control vanal.

Other features of the XL series in-ude the addition of host-selectable summinications parameters includ-g bit/sec. rate, parity and X-On and Off controls.

The XL series terminals are priced

NEW PRODUCTS/SYSTEMS & PERIPHERALS

Printers/Plotters

Genicom Corp. has unveiled its Model \$210 dot matrix printer. The Model \$210 prints \$200 prints \$200 char/sec. in draft mode and 60 char/sec. in letter-quality mode.

The printer comes with both parallel and certific interfaces and is said to work with the IBM Personal Computer as well as other popular desired.

computers.
he front panel of the printer alselection of character style,
h, print mode and self-test, ac-

pitch, print mode and seit-test, ac-cording to the vendor.

The Model 3210 offers a variety of printing, including emphasized, dou-ble-strike, superscript and propor-tional spacing. The printer, rased at 564be, has a standard 25-byte buffer with 8K bytes optional, according to

The Model 3210 costs \$1,495. Genicom, One General Electric Drive, Waynesboro, Va. 22980.

ts are said to house Di ent Corp. PDP-seri

concrosers.

The line includes the IEH9642-FA, priced at \$1,975; the IEH9642-PC, priced at \$1,860; and the IEH9647-AA, priced at \$2,975.

Everest Electronic Equipment, 100

Calif. 92806

Dates Lad. has introduced the DECEMBE Without Intervent and state. Intervent and state. Intervent Interven

We'll give you a free McIntosh* if you come to MACWORLD Expo/Dallas, October 16-18. 📥

How about them apples?

MACWORLD Expo/Dallas is the original computer show for both types of people is the world. Those who own a Macinsoh." the world. Those who own a Macrason,— And those who soon will.

In three days, under one mod, you'll discover sips, tricks, techniques, do's, don'ts, howe's and why for's that would otherwise take weeks so collect. And you'll get a free McImoth — the apple you est —

get a tree accussion— are appre you ca-pain for coming. Amend dynamic reminism and product workshops ma by industry capers. Vest handreds of exhibits. Talk to the companies-you hear on much about. See, such and test drive as estimordismy surry of hardware, software, and persphenish furthand. For these your Mexicania shalls— on the spox.

There's something for everyone. Even you, Mac.

It doesn't matter whether you're a power user or just about to take your first bite. After three days, you'il be chock full of informa-tion about Macintosh and what this remark-shle computer can do to help you — in the office, at school or at home.

ming gates. Maker new wijs in unions in potential of your Maximosh. There's literally something for every Maximosh user including Power User Semi nats and a special Deshtop Publishing Pro-gram. Also there is an Educational Forum asseed to interest teachers, students d administrators. All are exclusive as vCWORLD Expo/Delias.

One Macintosh deserves

Doe't miss our on this apportunity to feast on Maximush — the computer. And, pick up your free McImosh* apple at the door. When to come. Thursday Saturday, October 16-18, 1986 Exhibit Hours: 11 AM-6 PM.

rence Hours: 12 Noon-6 PM How little it costs.

\$15.00 for three-day admission to exhibit only. \$35.00 for three-day admission to the conference and exhibits. No credit cards or checks will be accepted at Market Hall.

Where it is

The NACWORLD Expo/Dellas will be held at Market Hall, 220 Stemmons Freeway, Dellas, Texas Parking is available behind For further information call Mitch Hall Associates at 617-329-7466

EXPOSITION DALLAS

* McImosh, the apple you eat

COMPUTER INDUSTRY

action hardes on name 146

Odd couple: Tarkenton, Martin merge to automate software

Pair dedicated to totally integrated architecture

Dy Aton Alper NEW YORK — This is a story of contrasts.

It is a story of a software development gure beaming up with a professional feetball player turned productivity maves. Moreover, it is a story of the merging of two companies dedicated to automating, and thereby accelerating, the software

erating, the noftware development cycle. Knowledgeware, Inc., founded by information systems design authority James Martin, has merged with Turkenton Software, Inc., a firm started by Pro Pootball Hall of Pame

lected through the exthange of stock by the two private firms' principals. The new firm reains the Knowledgeware name with Parkeeston as chief executive and thankeeston as the executive and thankeeston as the executive and the executive and martin as chairman meritus.

The merger, however, links two mprobable suitors. Turkenton, also a TV personality and author, is recognized for his

and advertising. Within the compejer industry, he is also known for the consulting role he played at Management Science America, Inc. when the company experienced hard times Tarkenton exudes charisma, a quality reflective of a one-time quarter

k.
(artin, a noted author, consultant
seminar speaker, is reserved. He
ss across as an academician rather than an estrepressur,
and he espouses the use of
engineering-like discicities and automated tools

nessmen get together?
We met in Dallas shout
four months ago, "Tarkenton recalls, noting that he
has revered Martin ever
since he heard about his
theories 12 years ago. "We
shared a limo ride to the
irport and in 46 minutes, realized

snared a simo rose to the airport and in 68 minetes, realized that there was great synergy between us and the companies. Both men realized that, from a technology perspective, the firms' products were assempting to solve different ends of the same problem. Founded an Database Design, Inc. in 1979, Ann Arbor, Rich-based Knowledgeware develops from-end

structured programming to expedit the construction of information systems. Four-year-old Atlanta-base Tarkenton Software has create

tion systems.

The merged entity, as cording to Tarkeston an Martin, represents the first first that will provid a totally integrated environment for analysis, de-

roment for analysis, ocsign and application code generation. "If you don't automate all lines of the product life cycle, it's like running a clockwork mechanism without som

product life cycle, it's like running a clockwork mechanism without some of the gears. Martin says. "The key is creating a totally integrated architecture, and you can't do that unless you have one company, one management and one marking organization."

More than technology, the new Knowledgeware is also offering committing services on information engineering methodologies and product

resource management techniques.

The combination of these elements is expected to help Knowledgeware make inroads into the MIS community. Better development tools could help counteract an ever-expanding

e feel is approaching eight years, do ble the publicly stated figure, Ta disenten says.

on says...
roject development could also be
expedited, he says. While
American Airlines' Sabre
airline information took
10 years to take form a decade ago, firms today can

Tarkenton notes.
"Using our combines set of tools, Sabre would have taken how long to de

have taken how long to de velop?" Turkenton ask Martin.

years, "Martin chimes in.

A recent report from Alex Brown
& Sons indicates that corporations
will increase expenditures on information systems by 200% to 300%
during the next five years. Much of
this investment, it eary, is predicated
that the information systems for misnion critical applications.

on developing toots to build structured information systems for mission critical applications.

Such research fludings convinceboth men that the firm is on the verge of big things. Neither will say how large their companies' combined revenue is, but they expect it to continue doubling each year in the foreseeable



All Reader and his learn can learn you in common in C by less than one services

Video Package Trains C Programmers Fast

Now your entire staff can learn C Language faster, belier, and at lower cost than ever before, See why BM, DEC, AT&T, Tandem, Compac, ITT, Taledyne, TVM, Tracityne, Rytheon, Texas hieraments, Motoola, Duke University and many other companies and universities are training thousan of programmers with this product. Our product best is our best at.

The All-Hands-On C Video Workshop offers many benefits: -Innovative Video Techniques help students remember content -Ideal for self-paced study or instructor led groups -Full features of C Language - basics through stuctures and pointers -S boar professionally more and researchize.

-5 hour professionally produced presentation
-Money back guarantee

All-Hands-On C Video Workshop

includes: 6 video modules 1 video workdisk

1 set of student materials (1 Learning Program in C by Tom Plum, 1 C video Workhook) Order Now! \$995.00 + \$12.00 sh For immediate delivery phone:

erials (1 Learning to 1 Plum, 1 C video

Retrieval Technology Corp. 3 Courthouse Lane Chelmsford, MA 01824

REACH 58,000



DANISH COMPUTER PROFESSIONALS.

Advertise in CW Communications' Danish publications and a your products directly to Denmark's thriving computer comm

> Computerworld/Denmark server 0,000 key EDP decision-makes throughout the Danish compute ommunity. Each week Computworld/Denmark covers new process cre and services, current applica to and services, current applica to the decision of the process of the total decision of the total t

PC World Dunmark is the m ly magazine that cargets 12,000 IBM PC and competible users and supplies them with first-

ompatible users and supplies them with fir hand information on the Danish PC marke Run reaches 26,000



and the state of t

Name Tale . Compa end as more information on poerworld/Danmark DiRen field/Danmark DiYea; other lowige, brochuse "The Computer Madestylace in De

PUT YOUR SPECIFICATIONS TO WORK. INSTEAD OF ON THE SHELF.

Let PACBASE automate them for full life cycle system productivity.

on-ine COBOL programs. Screen maps. Decabase describins and access for IMS*, DB2* or IDMS**. On-line help. End-user manuals. The works.

PACBASE saves time and effort.

PACBASE stores your specifications for reuse in new projects, greatly enhancing development productivity. Systems are standardized, reliable, consistent and easier to test and maintain.

All specifications are cross-referenced and keyword searchable, so impact studies can be not in a fraction of the time. Suggest a change. Then analyze its impact on related programs, screens, reports, documentation and help screens within minutes.

You'll never have to maintain a COBOL program again. Just modify the specifications, then let PACBASE regionerate the updated program, documentation and on-line help. Programs remain organized, efficient and documented, no matter the amount of frequency of maintenance.

And PACBASE increases the productivity of your entire project team, not just programmers.

*IMS, DB2 are registered trademarks of IBM Corporation **IDMS is a registered trademark of Cultimat Software Inc.



One Blue Hill Plaza, P.O. Box 1645 Pearl River, NY 10965

I want to put my specifications to work:

- ☐ I have an immediate need
 ☐ Please send more information
- Title
- Company.....
- Cey_____State___Z_P____

Return to CGI Systems, Inc. at the above address.

BANK OF AMERICA CHEVRON MOTOROLA, INC. WESTINGHOUSE DEFENSE & EL GOLDKIST INC. FOXBORO CO. APPLE COMPUTERS FORD AEROSPACE DHL WO CONTROL DATA CORP. HERMAN MILLER, INC. THE STOUFFER CORP. COMPUTER AFROPORTS DE PARIS NEODATA SERVICES ESI LOGIC OUESTAR SERVICES CORE CENTRAL NE COLLEGE GPA (GROUPE DES POPULAIRES D'ASSURANCES). TECHN CROCKER BANK SOFRESID FEDERAL HOME LOAN BANKS MONOLITHIC MEMO STANFORD LINEAR ACCELERATOR CENTER CENTRE D'AUTOMATISATION POLIR ASPEN SYSTEMS, INC. FINANCIAL TECHNOLOGIES, INC. PLANNING RESEARCH HOI v Chrónic OUTHF INIVER OMPAGNIF TLE BANK REA - BATES 1 NIVF MIC isi)s TATE U KTHWES: 'AV IFE RICH WII SITY C TING (I'ON UNIVER ON T BFR INFERS HAW(OND CHI TTE INC. MANAGE NG šΕ APP SPACE DHI. W E) MC วร THE UFFER RVISION HAN ĊС ΝÍ LSI OUE. IC. ORPORATION HEN ANY TEC AL ECO **SEK** BFIIN P CS S RD I RAY A CORPO **«VICE** ANTO FIR: **JFAR** VFR COMPA JIA POW GEORGIA POWER COMPANY SPRINGS INDUSTRIES, INC. RHONE-POULENC INF EDMONTON PUBLIC SCHOOLS TOTAL COMPAGNIE FRANCAISE DES PETROLES HOUSTON CHRONICLE SOUTHERN ILLINOIS UNIVERSITY COMPAGNIE GENERA CRAWFORD & COMPANY READING & BATES THE UNIVERSITY OF MISSOURI HEWITT ASSOCIATES IC INDUSTRIES MICHIGAN STATE UNIVERSITY NORTHWE THE UNIVERSITY OF MINNESOTA WILSON SPORTING GOODS BOSTON UNIVER GARDNER & PRESTON PANZANI MILLIAT FRERES S.A. BELIN RAYMOND KAISER

A FEW GOOD NAMES THAT

TRONICS CENTER COMMERCIAL UNION INSURANCE. GILLETTE CANADA, INC WIDE EXPRESS LEVI STRAUSS & COMPANY HBO & CO. A.C. NIELSEN COMPUT BION HAMILTON OIL CORPORATION DIALOG INFORMATION SERVICES INC. AE RATION EPRI SOUTHERN COMPANY SERVICES, INC. THE UNIVERSITY OF ELECTR I ECONOMIC SERVICES BERKEY PHOTO HARRIS GRAPHICS ARAMCO SERVICES RAYCHEM CORPORATION FIRST COMPUTER SERVICES, INC. TECHNOLOGIES, 1 MANAGEMENT TEKTRONIX VERSATEC NIELSEN RECHERCHES MARKETING PO RPORATION GREAT WESTERN SAVINGS LOMA LINDA UNIVERSITY SECURITY F TESORO PETROLFI" SEN RECHER TONS TE DE CONS BURNS C ING SER 'E CORP. HEY TES IC IN SFIDM OF MIN MAN SF PARTON RONICS JNIVE 1 15 IORLO RESTON T FRERE MAINE GARDNE. ZANI N JAI S PET S EDMON 'UBLIC SCHOOLS B GNIE F OF AME N INSURANCE GO E & FL! .ONI(NTFI MMERCIAL. JT INC. I L DATA CORP. ' CON 'Y'HBU O. 1 IELSEN COL N MILLER ES I INFC **AFROPORTS** ARIS COMPI NEODATA SE ES, I' E GPA (GR) DES POPT LS D'ASSURANCE FSID FFF HOME LC ANKS INDUSTRIES CROCKER RA JN POUR L ELECTR CENTER CE. (NC. RHONE-13041113 " VICTORIAL TOUTE VOLUNIAL JF AME MATIQUE VOLUNTARY HOSPITALS OF AMÈRICA COMPUTING SERVICES FINAN CURITY PACIFIC NATIONAL BANK STANDARD LIFE ASSURANCE THE UNIVERSIT DE CONSTRUCTIONS TELEPHONIQUES TESORO PETROLEUM NIELSEN RECHERC ANTILE BANK BURNS COMPUTING SERVICES HEALTH ONE CORP. PLANNING N RN NATIONAL LIFE RICHMAN GORDMAN SEIDMAN & SEIDMAN CORPORATIO THE UNIVERSITY OF SOUTHERN MAINE FRALSEN HORLOGERIE ELECTRONIC

GINEERS HAWORTH CORPORATION B. DALTON SPARTON ELECTRONICS NATI ELPED US BUII

Names of companies who have already tested and proven NOMAD2 superior to any other 4GL/DBMS on the market. Names that read like the Who's Who of the corporate world. Including leaders in virtually every business around the globe.
Why have they chosen NOMAD2? Confidence.

When making a software acquisition, confidence in the vendor is as important as product quality. And when you're evaluating NOMAD2, here are a few important facts to keep in mind

- NOMAD2 is a product of the world's largest information services corporation, The Dun & Bradstreet Corporation.
 80% of NOMAD2 reflects suggestions from our user
- . There are over 100,000 NOMAD2 users, many of whom belong to local or international users' groups.

 150 man years have been invested in the ongoing enhancement of NOMAD2. . 85% of those who try NOMAD2, buy it.

When you study all these facts, one message becomes clear. We are committed to providing the highest level of customer satisfaction and support. To standing behind our products. To meeting every need of our users.

History proves we've done all that for the companies on this list. We'd like to do it for you, too.

NOMAD2, which runs on your mainframe or ours, is

another step in the NOMAD evolution that began in 1975. For information, here's another good name to remember. Deborah Cox. D&B Computing Services, 187 Danbury Road, Wilton, CT 06897. Or call her at (203) 762-2511.

The World's Premier 4GL DBMS NOMAD2 is a registered trademark of D&B Computing Se NOMAD is a trademark of D&B Computing Services, Inc.

D&B Computing Services -

"Simply put, Computerworld delivers just what were looking for: top-quality job applicants."



Roger Fraumann Skall Director Lachman Associates, In Westmann I.E.

Roger Fraumann is Staff Director for Lachman Associates, inc. (LAI) of Westmort, Binds in it one of the largest development firms in the United States. And Roger is pleased to report that plans call for continuing the 50% cannual growth every year for the next five years.

Roger is also pleased with Computerworld's contributions to the company's growth. When he needs qualified people to fill positions as the company grows, he turns to Computerworld.

"Computerworld is the only national publication that we roulinely advertise in. Every Roger. That year we determined that we needed consistent national exposure. We chose Computerworld, which gave us exactly that Simply put. Computerworld delivers just what we're looking for lop-quality job applicans:

"We get about 20 responses per ad, and what readly counts is that those responses yield at least two quality applicants per ad." Roger explains. "Overall, a higher percentage of quality people respond to our ads in Computerworld, as opposed to what other publications deliver. Computerworld was for us."

Plus. Roger has found added incentive to advertise in Computerworld: "The same ad that runs nationally in Computerworld costs twice as much to run in the Chicago Tilbune, α local newspaper," he notes.

Since LAI began advertising in Computerworld, the company has gone from 50 to 130 full-time professionals. We've been in Computerworld about every other week. And with the compony's plans for growth for the next five years, we've going to continue advertising in Computerworld. Says Roget.

Computerworld. We're helping employers and lop professionals get together in the computer community. Every week. Just ask loger.

For all the facts, call Al DeMille, National Sales Manager. at (617) 879-0700.

COMPUTERWORLD

375 Cochitacie Boad, Box 9171. singhom, MA 01701-9171/(617) 879-0700



Computer industry emerging from slump, but gold-rush days are over

by mean batter

to mean the control of the control

"Last year, when sales growth

77

'Cost reduction measures over the ist year mean that a nast year mean that a modest improvement in sales is resulting in a profitable 1986 or most companies."

wed sharply, this overextended ustry took severe losses," Christie

The best of the control of the contr

ed to be 2.5%, compared with spend-ing increases of 8.7% in 1965 and 15.6% in 1984, the department's Bu-reau of Economic Analysis reported

eau of Economic Analysis reported artier this month. Concerning international competi-ion, the Conguter and Business quipment Manufacturers Associa-sion (CBEMA) recently reported that he industry's trade balance wors-ned in the first half of 1980. Dusti-cess equipment and telecommunica-cess equipment and telecommunica-tions and the computers.

tions industries retained a positive balance of trade of \$1.4 billion for the first six mentils of 1896, but the mentils of 1896 figure 1.00 to 1996 figure 1.00

Tarkenton unites with Martin

tions page its
fiture as they did when the firms
were independent.
"It not a question of how fast we
were independent.
"It not a question of how fast we
per powsth," Martin says.
Robping on the management and
sarksting sides in Big Eight accountof motified in the management and
sarksting sides in Big Eight accountted motified millions in Knowledgeware — the largest investment;
sever made in somegar, says Bigsire was made in somegar, says Bigfirm's indermation is chinology group.
Arthur Young will like jut the young
firm expand its stopp on an international hostile, Whitelia says.

Knowledgeware expects to have its first loosely integrated product out within the next two months.

Also promised is increased competition in the software development field, Martin and Tarkenton agree. A variety of software firms are devising integrated software development approaches that could bit the market

in the short term. While applicating these companies efforts, Martin says the industrial control of the short of the short

Multiple Session Management Improves Online User Productivity

- TPX makes MVS or MVS/XA online users more productive by offering concurrent access to all applications in an ACE/VTAM network. The elements that make TPX the standard for concurrent multiple session management are:
- Parallel access to all applicati
 - Cross domain support for VTAM and TCAM Session retention from application abends

 - Broadcast and selective message sending
 - Session portability from terminal to terminal Screen forwarding that reduces HELP desk

With its comprehensive, but simple, command structure, extensive error diagnostics, optional user profiles, and extended security capabilities, TPX offers the broadest possible base for increased terminal productivity.

ntact us today to find out how TPX can help you se online terminal user productivity.



(800) 323-2600 (412) 323-2600 in PA



As part of an ongoing effort to re-vess resources on OEM sales and sufficiently and to provide a sales for the sufficiently and to provide a sales field service network for its tomores, Beacher heaternational, associated the signific of a pur-sion of the service of the sales of the sales of the sufficient service of the sales of the sales of the sufficient service of the sales of the sales of the they are sales of the sales of the sales prior to a state of the sales prior to sales of the sales prior to the sales of the sales prior to the sales prior to

Billiace Corp., announced it has en-red into a letter of intent with Mil-sheld Heetal Corp., that conten-tates the acquisition of Sifter by The acquisition of Sifter by The merger would result in the architecture of Sifter of Sifter of Sifter or each sheet. In addition, as owner equal to 70 cents per share the second of Sifter of Sifter of Sifter of Sifter Sifter of Sifter of Sifter Sifter of Sifter is survival by placed in exercise at the of Conting to the held of Sifter architects as indemnity from cor-minating the sifter of the sifter

ase agreement calls for use 1,380,000 common ck valued, in Canadian 2 apiece for all of Clan-ding common stock. An 163,333 Helix shares

The Argo Group, Inc., Litel T manuscrations Corp. and Mi I, Inc., three private long-dista siephone companies, announced heep have approved a definitive erger agreement that provides for he three firms to consolidate their

formed corporation.
The new company's principal office will be located in Boca Raton,
Fla., and will operate a domestic and
international facilities-based, all-digital telecommunications system using
fiber-optic and satellite facilities.

Tel/Man, Inc. and Southernet, c. announced an agreement in prin-

Israeli firm offers on-line contract listing

International service available over Tymnet

By Mitch Botts
WASHINGTON, D.C. — An Inraeli firm last week announced its entry into the U.S. business market with an or-line information service called World Bid, which provides listings of U.S. and international government

U.S. and internance contract opportunities. The on-line data base, which re-sides on a host computer in lersel, will be available in about two weeks via the Tymnet international data network, the vendor said Tymnet is a nervice provided by McDonnell

Douglas Network Systems Co., based in San Jose, Calif.
World Bid USA, the U.S. unit of Tel Aviv-based Shaked International Marketing LEd. and Eart LEd., made the announcement in Washington at a briefing that featured israeli Prime Minister Shimon Peres.

The service costs \$46 per hour for the U.S. listings and about \$75 per hour for the international listings, in addition to Tymnet network charges, officials said. The firm has entered a crowded marketplace. Five other information vendors already offer electronic ac-cess to U.S. government contracting

information computed uy san our partment of Commerce.

However, World Bid officials claimed that their menu-driven system is easier to use, and they stressed that the World Bid service also provides access to international bid re-

questa.
World Bid's international data base includes contract information from the European Economic Com-munity, the North Atlantic Treaty Organization, the Iarneli government, U.S. military bases in Europe, Size gio Defense Initiative military offices and the U.S. Information Agency's tion coronicies to community represen-



Paradyne faces Customs Service investigation

Probe involves export regulation compliance

By James A. Martin LARGO, Fla. — Paradyne Corp. is being investigated by the U.S. Cus-toms Service for possible noncompli-ance with Export Administration Act procedures in the shipment and dis-tribution of Paradyne products over-

seas.

The investigation apparently addresses the company's compliance record with export licensing requirements for the shipment of products out of the U.S. These products include modems with speeds greater

Paradyne officials do not know the details of the investigation be-cause the Customs Service has re-fused to discuss it with the company, Frazer said.

The company learned of the investigation when two customs officials approached a company employee for questioning regarding the export of Paradyne products.

The company decises are:

its products.
"The Department of Commen-has sudited Paradyne within the la-year in terms of export regulation and they indicated overall satisfa-tion with Paradyne's internal contr-program," Frazer said.

The investigation is unrelated to the federal grand jury indictments that accused Furadyne and the executives of fraud in December 1985. "There should be no direct or indi-rect relationship," Frazer see The art two superarie insures would not comment on the Paradyne inves-tination.

NCR cautiously optimistic

Exisy said he hoped NCR's com-mercial relationship with Sperry would continue in the aftermath of its acquisition by Burroughs. He ex-pects the acquisition to have long-term effects on the balance of power in the industry only if Burroughs' 'critical mass' objectives are at-

"critical mass trained.
"If the expectations of Burroughs management that there are some efficiencies to be gained by acquiring Spierry are proven correct, then we will have a stronger competitor to deal with," he concluded.

Lacking the revenue jolt that ac-quiring Sperry would have given NCR Exies offered a prescription for accelerating NCR's revenue growth during an era characterized by se-

ourning an era characterized by se-vere price erosion.

Exkey noted that NCR must contin-ue to offset the declining price for ba-sic functions such as main memory, disk storage and processing power of its products by developing new prod-ucts that utilize these functions to provide increased value to custom-

NCR has already embarked on that path, he noted.

Order value of Tower pari

Despite substantial price reduc-tions, the order value per average configuration of NCR's Unix-based Tower series has increased by 7% since the product family's first full year of sales in 1984.

Average revenue per unit in the ersonal computer-compatible busi-tes has increased 30% since 1985.

personal computer-computation meas has increased 30% since 1985, Exiey said.

NCR would avoid the risks associated with accelerated growth by refraining from booking a business that would negatively affect gross profit

margins.
"Our approach is not to hit home runs, but to be a steady hitter of sin-gles," he said.

SERGERS from page 124

The Saddlebreck Corp. in Cambridge, Mass., and Mid-Continent Computer Services, Inc. in Denver, Colo., announced that they will become subsidiaries of a newly formed holding corporation that will

come subsidiaries of a newly formed holding corporation that will be named The Saddlebrook Corp. Saddlebrook will work with Mid-Continent and Salomon Brothers, Inc. to arrange financing to purchase Mid-Continent from its parent, Piret Mid-Continent from its parent, Piret Once formed, the new corporation will have combined sales of \$54 million.

Scientific Micro Systems, Inc., a publicly held company, has signed a definitive agreement to merge opera-tions with Signes Corp., a Santa Clara, Calif., manufacturer of tape controllers and disk and tape storage systems for the IBM Personal Com-retes competible mother.

systems for the 18th Personal Com-puter-compatible market.
Under terms of the agreement, Si-gen's operations and employees have moved into Scientific Micro Systems facilities in Mountain View, Calif. d will operate as product division

ter Technology. rotection, more ess space.





enna, Inc. said it will resent Intel Corp. as a as and marketing strat-gis McKenna acquired ent in early 1972 and

and Design Systems sector (CMIS) and the Manufacturing, Medicial and Analytical Systems sector (MMAS). The Design Systems Group, previ-ously part of CMIS, will move to MMAS. The Design Systems Group is

software for use in computer-sided design and engineering applications. The Analytical Group, formerly part of IMAS, shifts to CMIS. The Analytical group employs 2,600 per interments and systems used for chemical analysis. The Hedical Group, formerly part of IMAS, also moves to CMIS. The Bodical Group employs shortcome de-signation of the CMIS of the struments and systems for use in pro-fessional health care.

Affiliation may beget contempt

The maps of the control of the contr

surfi, pay to use Quotron services, he said.

The house the convention that C.

The bounded not use Quotron to obtain proprietary information about to client, colline susphasized that independent subsidiary under existing sanagement.

Choices with within brokenage
houses and banks which, in theory,
existing the convention of the regulatory
Choices with within brokenage
houses and banks which, in theory,
existing the colline of the convention of
proposed, or control of the colline of
proposed, or displanted with of
the
wrong hands. Colline discussed 'usproject, of chainlose of wall of
these
proposed, of the
proposed
proposed, or
proposed
proposed

STRATEGIC

Shouldn't you be a Subscriber?

If you want the complete inside story on the information management revolution, there's only one publication you need: COMPUTERWORLD.



COMPUTERWORLD makes you an insider!

computer professionals read. It's also the weekly for people in all areas of management who need to know what's going on, who want to be plugged into the information-management revolu-COMPUTERWORLD is the source! Hard-

ware. Software. Systems. Updates. Revisions. Add-ons. COMPUTERWORLD is comprehensive. It covers micros to mainframes. Manu-

facturers. Systems. Applications. COMPUTERWORLD puts it in context. What's new, Who's it for? What's com-

COMPUTERWORLD helps you decide. Buy it now or later? What do you lose if you wait? Is there something better on the drawing boards?

Subscribe Today!

There's no time for mailing coupons. For fast start-up, phone the toll-free number below and start your own subscription today at the special professional rate. Just \$38.95 for 51 weekly issues of COMPUTERWORLD . . . plus, all the in-depth, single-topic issues of COMPUTERWORLD FOCUS at no extra charge. A bonus. A bargain. Indispensable!

1-800-544-3712*

COMPUTERWORLD is for users!

Written from the user's point of view .. yours. What's right for your needs? How can you be sure? What are others buying? Are they happy with what they

How can you get more and better service and support from suppliers? Should you buy or lease? What are the disadvantages of one product or system vs. another? What didn't the vendors tell you that vou need to know?

See COMPUTERWORLD!

We have the largest, most experienced editorial staff of any computer publica-tion. Full-time bureaus in four U.S. regions, plus Paris and Tokyo. A worldwide editorial staff of over 400 editors and reporters. Information is our subject and no one is more adept at gathering it.



CDC plans road to recovery with divestiture of subsidiary

Proceeds to lower debt. strengthen core business

By Donne Rulmondi MINNEAPOLIS — The proposed divestiture of Control Data Corp. is successful Commercial Credit Co.

sources M. Price, the 43.7 billion impany's chairman and CBO, an-ounced earlier this month [CW, ept. 16] that its wholly owned Com-ercial Credit subaiding.

Co. president.
Under terms of the agreement, a public offering of Commercial Credit stock by CDC and a simultaneous of feeting by Commercial Credit would be undertaken, reducing CDC's ownership of the subsidiary to less than

_____y to less than
Connectial Credit, headquartered
in Baltimore, has assets of \$5 hillion
and a net worth of \$60 million. In
1985, it showed an after-tax ions to
its parent firm of \$4.5 million, according to CD.
CDC's immedia**

the proceeds from this sale to strengthen its core businesses — computers, peripherals and related services — and its capital structure.

computers, peripherals and related services— and its capital directors. It will reduce the insercompany debt all produces the insercompany debt all produces (Dr. overall debt-sequity ratio, the company says. Beddien and the computer of th

made significant management changes, and there are signs of a re-turn to profitability." he adds. The biggest sign is that the per-pherais basiness, once a heavy CDC money-maker and more recently a se-rious drain on its profits, has turned itself around and become profitable

again.

ETA Systems, Inc., CDC's supercomputer company, should have a
system on the market early in 1987.

While it is unlikely that ETA could
turn a profit in its first year of product offerings, it at least will have

set offerings, it as least win nave some revenue to reduce its losses, ac-cording to Blauer. Under terms of the agreement, Welli would become chairman of the board and CBO of Commercial Credit. He and others in his management group would purchase common stock of Commercial Credit.

"Weill is very well known in the fi-nancial community," Blauer says. Weill built the Shearson investment firm — now known as Shearson Leh-man Brothers, Inc. — from a small operation into an industry giant be-fore selling it to American Express.

International Marketing. If you've got the computer products, we've got the facts. And they're yours ... FREE!

Whether you're just beginning or expanding your international marketing efforts, CW Communication has gathered all the facts for you. And that means you'll save time, labor and money. Our market fact brochures, available to you free of charge, tell you what you need to know about computer markets in many countries around the world.

In fact, we've spelled it all out for you. Each market fact brochure examines the current and projected

try, including software and services, hardware - from main frames to PCs -



and leading vendors.

CW Communications has the computer world covered. Our compre-hensive data can help you make informed decisions about when and where you should embark on an international campaign.

If your company is currently involved in, or planning an international marketing program, you can benefit from our worldwide coverage. Be sure to

take advantage of this unusu al opportunity and get the latest in-depth information on the international

computer mar-ketplace abso-





CW International Marketing Services 375 Cochituste Road Box 9171 Francischum, MA 01701-9171 (617) 879-0700 Please sand me the following brochums: "The Computer Marketplace in" □ S.E. Asis □ Mexico □ Australia □ Netherlands □ Brasil ☐ Arguntina ☐ Japon D Denmark D Spain □ Reland □ Sweden □ France □ United Kingdom □ Norway [] Wort Germany

Title Company _____ _____Sule _____ Zip ______ Phone __ EXECUTIVE

NBI, inc. of Boulder, Colo., an-nounced the appointment of Bernard Cohen as president of its Office Prod-ucts Division. Cohen will assume the responsibilities of former Executive Vice-President David Kiefn, who will return to NBI's Office Systems Divim after a short transition period.

ston after a short transition period.

Ealph E. Gomery, IBM's senior vice-president, has been named to head an organization consolidating the company's research division and its technology assessment and university relations functions. As part of the consolidation, domory will arrive the consolidation, domory will a characteristic and the consolidation, domory will achieve the consolidation, domory will be characteristic and the consolidation, domory will be characteristic and the consolidation of the consolidation, domory will be consolidation, and the consolidation will be consolidation with the consolidation of the consolidation will be consolidated with the consolidation of the consolidation will be consolidation will be consolidation will be consolidation will be consolidation.

The Communications Equipment Corp. announced that Thomas Mer-cer has been named president and chief operating officer. Formerty, Mercer held senior management non-tions with We-

Charles E. Kenmore has been named vice-president and general manager of Shared Network Service. As a Consast Technology, fac vice as Consast Technology, fac vice possible for the development, implementation, staffing and consercialization of Starcom Data Services, Coment's new interactive, shared-data network. Prior to this, he served as vice-president of the telecommuni-cations division for General Data

Data General Corp. has announced the election of Vahram V. William-see as vice-president of U.S. manu-facturing operations, pech-

"The #1 place to recruit qualified computer professionals nationally is Computerworld."



Robin Schwartz Employment and Employee Relations Man McCormack & Dodge Natick, MA

Robin Schwarts is Employment and Employee Relations Manager for McCommant & Dodge, a software company bosed in Natice, Manachesels. She is responsible for recruiting people for the company's home office as well as its seven regional disces scross the country. And earlier this year when Robin was looking for software applications scies and export peoples, the chose to run on an in Computerworld.

"I had numerous openings for positions across the county. From a cost-efficiency standpoint, Computerword sevened like the logical choice," says Robin. "But before findings my decision. I did a title investigating. I claimed to our acties managements here at McCommack & Dodge — and they all agreed. The #1 piace to McCommack & Dodge — and they all agreed. The #1 piace to Computerword. To beep in bouch with what's going on in the

Computerworld. To keep in bruch with what's poing on in the inclusity, people have to need Computerworld: "she expirite. McCormock & Dodge is enjoying national withility as a result of the od, but, more importantly, Robbin is quite piecased with the responses." My people were right, like placed the ad in the beginning of the year and previewed treasmadous response war our resurress. Computerworld deviated the analysis was not resurress. Computerworld deviated has a long little cycle through its pass-cloning critication," the cold in the control of the country is pass-cloning critication," the cold in the control of the country is pass-cloning critication," the cold in the control of the country to the control of the control of the control of the country to the control of the control of the control of the country to the control of the control of the control of the country to the control of the control of the control of the country to the control of the control of the control of the country to the control of the control of the control of the country to the control of the control of the control of the control of the country to the control of t

"The quality of the responses has made our ad placement more than worthwhile," concludes Bobin. "The professionals responding to our ad one experienced, not flat foot changers. We are getting in fouch with flust the people we need to reach." In foct, according to Robin. "Quite a lew of the positions are already

Computerworld. We're helping employers and top professional get together in the computer community. Every week. Just ask Robin.

Robin.

For all the facts, call Al DeMille, National Sales Manager, at (617) 879-0700.

COMPUTERWORLD

375 Cochétuate Road, Box 9171, ningham, MA 01701-9171/(617) 879-0700



BUY - SELL - SWAP

3420



PO BOX 71 + 610 BRYAN STREET + OLD HICKORY, TENNESSEE STUB



BEST PRICE BEST SERVICE BEST DELIVERY WHETHER YOU BLY, SELL, OR LEASE

3890-B04

3705 3725 BUY . SELL . LEASE

WANG

Y . SELL . SWAP

in the COMPUTERWORLD Cleaning pages Call us now at 1-800-343-8474





DISPLAYWRITE DATAMASTERS \$/23 RLIV SELL LEASE

612/894-2200

LEASES FOR ALL SYST AND PERPHERALS

Valley Comput & Financial, Inc

. SFI I · LEASE NEW OR

3704

We've got fi ns. As well as



SERIES/1

NEW CERTAINTY™

- SERIES PERIPHERALS
 - * 64MB Streaming Tape * 64 - 240MB Disk Drives
 - * Printers up to 800LPM
 - * 2MB Add-In Memory * Remote Console (RTA)

CAMBEX CORPORATION

360 Second Avenue am, MA 02154

(617) 890-6000 (800) 325-5565

CAMBEX - A GOOD PLACE TO PUT YOUR INFORMATION

IBM BUY SELL LEASE 4300 36 38 SERIES

BUY DIRECT

YSTEMS/34 + 36 + 38 BELL & LEASE COM

1/34 + \$/36 + \$/38 1/23 · 4386 · MS 4мсом

BAY SELL SHIP

BUT SELL SHAP



CALL US NOW ... TOLL FREE!



A subsidiary of The Controlled Corporation



Œ 2978 SHELLEY ST SEMPHOS, TH 20134 MCE 1974" 35

CDUR

3081K 32x24 3083BX 24x16 3083J 24x16 (800) 821-0229 (818) 985-2411

MICRO **PRODUCTS** & SERVICES

- SCREENIO 2.0 -Realia COBOL acrees are a mag with SCREENIO 3.00
Buy Rasia COBOL (1990) and
SCREENIO (1900) from us and
get 1300 off or a free Kedi.
Or, sek us for a FREE deme disk.
NORCOM
Feet Office Box 607
Juneau, AK 90803-0867

(907) 780-6464 5106014951 NORCOM

STO SALE

BIDS &

PROPOSALS

Custom Cables

The Bulletin Board

Buy • Sell - L	ease Buy	Sell · Lease	Buy · Sell · L	ease Buy	Sell • Lease
PRINTERS	IBM	HEWLETT PACKARD	DEC	DATA GENERAL	QANTEL
Dataproducts Patery Renewalched Printers Life Year In Appearance & Operation 10 Day Patery Manney Cod (1914) 680-691 per ask for Years (Ng.	4381-R14 37 Mag 12 Charmolin 3 Yr Lasse - 500,000 Per Mo Audable 11/15 (700) 941-4423 Add by Ann Thumbon	PRINTER SPECIAL. HP 2910A 1000 jam Pinter 2000 HP 2917A 200 jam Pinter 2005 and up 301* SSLL * SSRT * LEASE From the I-P 2000 Expansi From the I-P 2000 Expansi	DEC NEW & USED BUT - SELL - EXDMNEE But - SELL - EXDMNEE But - SELL - SELL - BUT - SELL - TRADE BUT - SELL - TRADE	APPROXISE USES DO DE LOS DEL LOS DE LOS DE LOS DE LOS DE LOS DE LOS DEL LO	CANTEL SYSTEM 146 Ct. 7585 Dist Dives, Mr. 4012 Video Tarmina, Mr. 5011 Prince, Mode 5213 Ti Dive. Content Mr. Person (713) 980-9284
IBM	701 SALE/LEAST 3000-003's 3300-AA4's & 804's Sale-sees Computer Co. (12) SAL-SEE	Min stock - Immediate delivery Subject to prior sub All veneration in quality by IPF marketismus 800865-806 213465-2277 Conden Corporation its Performance Trail Counted	Owner DE many plus het 1934 Street Manual Photos Street Manual Street Ma	600 2001-000 Tags Srt. 0. 500 471 1201 176 Frenc. 911.500 471 1201 176 Frenc. 911.500 471 1201 176 Frenc. 911.500 600 1200 176 176 176 176 600 176 176 176 176 600 176 176 176 176 600 176 176 176 176 600 176 176 176 176 176 176 176 176 176 176	MODEMS
WATER COMPRESSION INCOME. PROPERTY HEED IBM 1402 CARD READ PUNCH	\$4.26 \$7.26 \$25.40 Personne \$25.40 Personne \$25.40 Personne \$25.41 Personne \$2	HP 3000 e 1000 9000 and now 250 Buy & Sall Victoriate ENCORE (213, 462-4117 Total 756627	MEM POP 11/72 At Mays Then 20% CE List 1 MED Search, 71 MED String, Chai China, LASS Laser Review, (2) V7/20% (1) V7/10%, TALLE Mempfilled Finds 11 COSCO, 451, A to 2; List Peter Search Cost Central Search Central Cost Central Selb Stone, (MSS, 488-4887	NA STETEMS NC. In the SMLE, LENGE, PURPOSE & SERVICE OF DOTA GENERAL EQUIPMENT GALL SIGN STORM DOLLATER FLANT FLOOR DOLLATER FLOO	PARADYNE MODEMS MP-86 (Dty, 124) Lesse city - Any Term Analysis 10-1-66 fellos Bustones (D-1-66 (TH) El-666
to operating condition or available for parts registrations. CALL ME TOCHY JOHN INTERESTES Concentration Processing PERSON TURNISHED TOTAL BOOK TURNISHED TOTAL BOOK TOCH TOCH TOCH TOCH TOCH TOCH TOCH TOCH	3420, 3370, 3375, 3380 Al Ohr Bill Unit Analose Cal Sing Maryan 201425-4511 in CA 401241-3877 Marketless Computer Corp.	Your Ad Could Be Here For \$160.00	DECMATE II \$1,695. LQP02 \$1,395. Digital Computer Recale (713) 445-0062	NEW D.G. C.R.T.'S 0014 SR. Dell SR. 0014 SP. Dell 1130 Communication of the Communication Communication of the Communication Communication of the Communication Advantagement of the Communication 1-000 4-1-00000 Communication of the Communication of the Communic	CODEX At Unbelonable Price All Medels Cleary Come Common 51,21 Come 213-304-504 On 1-800-301-6383
System 38 Model 4 1 Year Chr Under All State Management 2 Model 200 Days Dress	For Balls 4341-82 With Full Mag Cards Available Late Outsider 7509 805,000 Contact Walking Cards (408) 750-8000	HONEYWELL	Barrier Territory Group 100 February Street 100 F	PRIME	MISC.
7) Monte 2070 Date Over 7) Monte 2010 de Préser 7) Monte 2010 de Préser 7) Monte 2010 de Préser 7) Monte 2011 de Préser 8) 633 - 633 - 633 4	WELL FAY TOP \$ BM 26, 36, 34 perforphists Cut day thops 100-05-041 I-OSE 48-341-3877 Machinian Computer Corp.	HORETWELL SPECIALISTS LEVEL 6 DPS 6 SERVES 16 The Recognised Laster In Hymogenic Laster In Hymogenic Hymogenical Compliant And Support and Service and Service All Reports and Turner Compliant Comp	WANG	TO - No other, began and man or provinced margin of first party per- forms, marries and controllers to from care. SAT o SELL O'LANGE O SERT MATCHAN, SEC. 4115 TURNING, SEC. 4115 TURNING, SEC. 4115 TURNING, SEC. 4115 Turning, Sections, Inc., 4000 Turning, Sections, Inc., 4000	NEW & USED RANSED FLOORING Antinothin Darkey Darky Institute Antinothin Construction Cons
34-36-38 Bystoms, Professor & Ungrains Convent Outly Serve Special Parkets Serve United Systems Contys Complete Systems, Ser- UNI (100) 640-660	SALE/LEASE S/36 Neo O C Neo O Mare (Fig. 221-80) Company Martings (Fig. 221-80)	Company of Page 1 of Page	THE RIGHT EQUIPMENT RIGHT HOW AT THE RIGHT PRICE ICA. THE RIGHT CHOICE INVESTMENT OF THE PROPERTY AND THE PR	LARCE SELECTION OF USED PRINCE COLORATION SYSTEMS - SAME TO SO, Revision to select the state of the select the	USED COMPUTER DATA STORAGE SAFES Highest Rating Less Tree Half Price (800) 607-6609
S/38 Med S, Med S, Med 10 Jerosdate Annichity Med Bad Or Leane Source Date Products con, 200-200 4 111/206-7300 Cel Bob Leane	BURROUGHS	DEC	BUY - SELL INVELVE + OIGH VIS + PC SYSTEMAN DI INVENTICAY VIS-45 + OIGH VIS-100 GOODS GOODS (SCI.) STANDARD TEMPORATION GOODS (SCI.) 277 4220	COMPUTERWORLD BULLETIN BOARD leave Date: Add can be accepted up until the Monday proceding the sease desired. Computerworld comes out every Monday.	
OSCO MARKET NO COPT BIY A SELL Displayment 34**, 35**, 35**, 4500** Col 1-08-38-440 I Touch Sell Line College 47.36**, 35**, 35**, 4500** Col 1-08-38-440 SERVICE 1 BUY - SELL - LEASE Dyman, Perford & Upyrice Source Outs Predicts Boxen College Boxen C	BUY SELL LEASE BURROUGHS B-20 to 8-7000 SPECIAL 207 0895 (10 Units) B000 0807 NOX (308 Style) B000 1807 NOX (308 Style) B000 TOX (308 Style) B000 CONTROL (308 Style) B000	Builts Tuning Group and Stev Ennise Steel to provide Stee	Comp 27 States FOLION ASSOCIATE, INC. Was to Excellent that the folion of the folion	Cleanifications: Most ads with the ord of experiment that is built feet from include Burnagula; Districtions include Burnagula; Districtions include Burnagula; Districtions and Copyr Copyr part in vis the makens are 40 feet 400 plants for a design and 400 plants for a design and a second of the properties and the properties of the pro	I or talecopter (infecopter enter the cleanly type-writen. Add in infect of ad talears. The site deep. These write may be con- tally a control of the pro- teates of the present vi- ration of the present so- tender of the present so- tender farmer. Ho borders deed unit to \$160.00 (One us a silowed.) There are no again security.
Per BalayLasas 4341-4802 And 3380-AAB Drives Cal Jury (\$12) 835-7230 3262-3 Want To Buy Head in 20 Days	BURROUGHS BUT O SELL O LEASE System - Francisco - Appendix 0 of 100 and 100 an	DEC FALL SPECIALS THAT OF DE 1012 - 8.500 THAT OF DE 1012 - 8.500 THAT OF DE 1012 - 8.500 THAT INC 17.500 THAT INC	PC * OIS Board Repair/Depail Annual Property Committee Annual Property Committee Board Property Committee Board FOP 5 Together and Gorge FOR SALE CONTINUE OF SALE CONTINUE CONTINUE OF SALE CONTINUE CONTINUE OF SALE CONTINUE CONTINUE OF SALE CON	Billing Oros you've wife to be port of the and date set for the port of the po	
613) 774-7400	University Presented 1-000-000-0000	AL 222	Comments of the party of the pa	37's Conditions Road, Box 917'	BULLETIN BOARD

TIME & SERVICES

ICOTECH

We challenge you to find a timesharing price we can't undersell.

SOFTWARE **FOR SALE**



d Operation at Reduced Cost

IBM =

POSITION ANNOUNCEMENTS



- UNIX® O/S developme (System V & 4.xBSD)
- X.25, & TCP/IP)
- Telephony (ISDN, 85 mylich, OSPS, & ODD)



Saudi Arabia

HCA International

Sales Support Representative

UCCEL

means excellence from top products to the bottom line.

Some companies are technology driven. Others are market driven. At UCCEL, these forces are one in the same. We've created our own markets and have become one of the nation's leading independent suppliers of systems software products by insisting on excellence.

join our Systems Software Division in New York, Chicago, or Los Angeles where you will provide technical assistance in support of our Synova (software Integration) product.

Responsibilities include:

- Making pre-sales, technical and product presentations
 Client and sales training
 Direct involvement with system installation and implementation

Requirements include:

- · 3+ years experience in a large data processing center, with in-

- 3-) years experience in a large data processing center, with Involvement in system programming values and the processing center, with Involvement in system programming. The Involvement is not involved and gene. ISPF, ISO handmentals and COBOL macro coding. 4MYS experience is an ISBM maintraine emformment. 4MYS experience in an ISBM maintraine emfortment. 5MYS to 75% regional travel. 4MYS of the INVOLVEMENT of the INVOLVEMENT

At UCCEL, we have a rewarding way to put your best qualities to work. For immediate consideration, please submit résumé, including salary requirements to:

UCCEL Corporation UCCEL Tower 6303 Forest Park PD. Box 660054 Dallas, TX 75266 ATTN: Sue Ratcliff

UCCEL Where You Excel.

HONEYWELL SYSTEMS PROGRAMMERS

use in the united outside. Billifed candidates will have at least 2+ years of greative systems programming experience in a spruel DPS 88890 environment with an in-th knowledge of the GCOS operating system makes and or DMIY-TP Internats and proficient SIMAP assembly language programming.

ISC offers an excellent salary and benefit package. For consideration please call or send resume to:



CONTROL SECURITIES

DIR. OF COMPUTER OPERATIONS

COST. CHARTES PROS. (2) to CO.

DATA PROCESSING OPPORTUNITIES 1-800-423-5383 Our charts on the SUPPLIES and throughout

PIA 0000L DICK DUT, 899

Manager, Database Administration

SUPERCOMPUTER SUPPORT PERSON

Princeton University

PRINCETON, NEW JERSEY 08544



Send recurse to Bear Searce & Co Inc. 55 Waser St. NYC 10047 ATTN & Grund

1000 DP Openings CORRECT TO STATE OF THE STATE O

Top paying contracts GUARANTEED SPLITS TIONAL ASSIGNMENTS

0 Washington St. Martey, MA 02181 (617) 237-9119

PROGRAMMER

INDEPENDENTS DIRECT CONTRACTS N.Y., N.J., CORN., & L.I.

to \$550/day PRINCETON

INFORMATION LTD.

AMONG THE 100 REST PLAC

All across the nation — in newspapers, books and magnatines — people have been saying superlative things about Northrop, Lewring, Maskowitz and Katz wrote about Northrop in their book The 100 Bet. Companies To Work For Is A services. Fortune magnation and we were "first fire increastivemens." And Dun's Business Month called us a "nelf-sufficient, technological powerhouse, which pours huge amounts of its own money into research and development."

Set the standards in serospace technology with the company that sets itself above the rest

ing and KEP.

ECONEC SHOULTON SUPPORT

DEC VISS All-in-1 experties, and WPS Plas, DECclac. DEC_TYNS and "AX EdyTYNS. Requires accellent user skills, and spitude for sensiting new
uner with office statemention, and 50 years and user
users with office statemention, and 50 years and user

sensiting of office submention is a plus.

PC SOFTWAM SPECIALIST end-user support in Lobs 1-2-3, RBase 5000, ate, and Displaywrite 3. Requires 3-5 years

System administrator for DEC VAX 98/VMS. Create and maintain vMS and All-in-1 user accounts and fulfill all-in-1 requirements, sustems busing and operations coordination. Bequires 3-6 years VAX All-in-1 experience including WPS-Plus. DECard DECgraph and VAX R86/VMS. System trouble-

MEGACAL SUPPORT

vent MegaCalc in a MVS/TSO e
ist in implementation and de-

POCIS SEPPORT

lement FOCUS in an MVS-TSO enride end-user support including the de
oblicies and procedures to aid endlementation. Requires excellent com-

uses in the implementation of FOCUS and procures for end-user support, and become the key con-trol for end-user support, and become the key con-cept of the support of th

Analyse, develop and implement enhancements is Production Program Library Control systems Knowledge of Dialog Manager CLina, 08/5CL and Enwisedge of Dialog Manager CLina, 08/5CL and Dialog Manager CLina, 08/5CL and puns experience, preferably on large-scale IDM sys-

pear experience.

ALE BUTT OPEAFORS

Requires familiarily with Nickert 600/55 and ability to do 12,000 key streken per hour. My accounts receivable and various other applicates, accounts receivable and various other applicates.

Modern Users: You can access a complete listing of career positio your home computer and a modern. Dial (213) 998-5632 for 24-h information through our unique Career Access program.

ings: data 7, stops 2, no parity, full duplex 300/1200 bas PROOF OF U.S. CITIZENSHIP REQUIRED. Northern is an Essel C



NORTHROP

Advanced Systems Division

COMBULTANT
Design state of the art infegratad in atworks (voice)
datal for prestigious first one
Reg min. 2 ym. in SMA design
+ min. 3 ym. as a software
rog, wCOKAWS sys. State
in proj. mgmt. is a + SUBURBAN loc., accellent benefits + reloc., paid. Salary to
tan one

EAST TENNESSEE STATE UNIVERSITY

DIRECTOR OF COMPUTING AND INFORMATION RESOURCES

BANKING INTERNAL AND **EDP AUDITORS**

APPLICATIONS ENGINEER ----

MOVE SOUTH NOW

DEPUTY DIRECTOR COMPUTATION CENTER THE PENNSYLVANIA STATE UNIVERSITY

Analysts, Programmers, Software/Hardware Design Engineers AWARD WINNING EMPLOYMENT AGENTS

COMPUTER TECHNICIAN/ENG MAINE - N.H. We have specialized in data processing prolessome placement in Marie & N.P. for a SPR of a certainty of you qualify in positions in the 126-50,000 range places certaint in in 10th combination. Our clients pay our less and provide no promunications form in Southern miss has an opening for a Toch the solid background in the in mee and repair of DEC POP

SCHOMAC.

APR.

New, free Survey shows how salaries dramatically change according to your geographic location

IDMS - IMS DB2



Take the chance out *r* changing

The job you can get is only as good as the me you've got (the difference between being hot or not).

There's a good chance we can package you er, present you best. The difference between n a job and a career

The difference netween a you ama a curver could begin here. In Data Processing, Accounting or Banking (our people are professionals from the field in which we place you, well known and knowledgeable). ROMAC* meet with success.

3 ROMAC

of CONSULTING processing environment. The use a left in every corner of the exts Florids Presently we have

IBM SYSTEMS PROGRAMME! FELEPHONE EXPERIENCE HOGAN

nies are packed with simulation and car nywhers. That's sifty CGA has the stor-cessing industry and why forward thinks one and repulsion. Highly competitive red bonelit programs and within a sor

Patros Home (813) 273-0059

Petros Horne Bob Meenen (813) 273-0059 (305) 660-6833 ermely Blvd Suite 301 2700 Westerlal Lune, Suite 130 most, PL 33802 Meetend, PL 32751

CAP GEMINI AMERICA

Opportunities Consulting may be the right move for you.

Maximize Your

* Self-considering a change, left sit down and discuss the cases and fractical download discuss five cases and fractical download software of joining the Global Cambridge of joining the Global Cambridge of Joining the Global Cambridge of the Ca

HOW DOES YOUR COMPANY COMPARE?

The Data Group

DALLAS COM Property ASSO TO THE PARTY ASSOCIATION OF SAN FRANCISCO

PORTLAND

SOFTWARE STRUCTORS

When you don't have time to find the job vou want

Se, 'ching for a better job can be a full time job. That's why so many data processors, who want to make a change, don't. Or worse, they take the next iob offer that comes along.

If you can relate to this problem, Robert Half-Data Processing may be just perfect for you.

We're sensitive to the problem of the data processing professional, who wants to be fair to the present employer, and at the same time finds it necessary for career advancement to look for another job. Robert Half has been successful at discretely locating the right career positions for data processors—ever since the computer revolution began.

We can help you just as we've helped thousands of other professionals for almost 40 years.

If you must make a change, but can't spare the time for an interview during work hours, just call one of our 100 offices on three continents during a regular work day. Briefly explain your problem to one of our placement professionals, and we'll set up an in-depth phone interview at your convenience-after hours or on the weekend. If it's convenient for you to meet with us, so much the better—we'll arrange the interview. And if you don't have a current resume, we'll discuss all the pertinent

facts with you and compile them for presentation to suitable employers. Please understand this: Our service is 100% free to you. And, equally as important, we're success oriented. This means our clients only pay our fees when they hire through us. This makes us bener. A lot better.

So, if you're interested in finding a better data processing job, call one of our nearby offices. A few moments of your time now, may be the beginning of a new and brighter future.

ROBERT HAL

Programmer/Analyst RI

E. & I. GALLO WINERY



DATA PROCESSING

PROFESSIONALS ore is the recognized baster in Human Resources sol logy for BM maintains and System/St. Our Water.

VM & DOS Systems

Ideal/Datacom

Programmer
mentan our HMMS product line in the ADR on
manufactures required, plot of S-618. **Systems Software**

Packaging Specialist

Systems Engineer

NTEGRAL SYSTEMS The Deciding Factor

OR SYSTEMS SPECIALIST

u belong in a company that acknowled the importance of your valuable skills.

illed and interested conditions should sund resurre and salery ry, se Mary-love Sinclok, Parle-Davis Human Resources, Warner-bert, 170 Tater Read, Maris Plains, New Jersey 07950.

WARNER LAMBERT

MIS Planning Director

\$38 922 - \$53 474

Dunhill man.

ROMAC.

CPCS

CICS/IMS/VSAM DP Series

MIS CANDIDATES

DATA BASE ADMINISTRATOR

STEMS ANALYST nce (of least 3 yrs. system

You'll get the responses you're looking for when you advertise in Computerworld's classified pages.

And you'll get them fast.

Call toll-free 1-800-343-6474

(817) 879-0700

MANUFACTURING

MANAGER

BELL! HOWELL

COMPUTING SUPPORT FOR MOLECULAR BIOLOGY

The ideal candidate will be fluent in FORTRAN a estensive working experience in a VAX/NMS enviro come experience in molecular biology or a n localient ability in working with people from house

Monsanto

LET'S GO!!

CONSULTING

HOT NEEDSIN

COMPDATA

POSITION ANNOUNCEMENTS

Programmers & Systems Analysts, Consulting Opportunities

When it comes to discussing the future they want to stay away from the awarehing generalists and the grandous promises. They are tired of the unabstantiated offers of Me are tired of the unabstantiated offers of it on the leading edge and advantages on the fractions of knowledge. They've heard it a handred times before

GE Consulting realizes you want facts not forcers. You want to know.

ething about the

omething about the We are currently invoked in a large number of challenging assymmens with some of the higgest names in American business.

ething about what sperience we require

To staff these projects we have immedi-needs for individuals with the following

HDMS, ADSO, COBOL, NYS
HS, DL/1, COBOL, CCS
ADR or DB2
SYMBOLD-LISP MACHINE
Artificial Intelligence
Compiler Dusign, Master's Degree
required, PMD preferred

• VLSI, CAD, Design Engineers

FOT years

Chillege, dennist, stabley, and
opportunity—it's all part of the package when
you join the General Becaric Consulting Serwises team. No can also expect a lucrative
salary and benefits package as well.

We will support your move to the Alberty ares where the low cost of living figures guarantee you many blestyle options and a case of the good ide.

If you are interested in joining our tourn, sen your resume to: General Electric Consulting Services, Department CW 922, 17 Compute Drive West, Albany, NY 12305. An equal op

CONSULTING

FLORIDA

ENNESSEE

ROBERT HALF

Foreign Editorial/ Sales Offices

Total Company
N, Doman C 1000 Company
N, Doman Rose (2) 1000 Company
N, Doman Rose (2) 1000 Cell Six 315
Roses And Lifetic, Companyond Company
Company
N, Doman C 1000 Cell Six 315
Rose (2) 2000 Cell Six 315
Ros

Talwan: Grace Tang, ACE Media Agency Ltd., Boom 503, 1, Fu Hein S. Road, Sec. 1, Telpei, 10567, Tewen, R.O.C. Phone: 751 3636, Teles: 14142 (ACE GROUP), (Representative for all CMCI

tise

ALP'S America	
Applied Management, Inc.	
Applied Resported	
Artificial intelligence	
Attacherate	
10H Sultivare	
Sendata	
R Mayte Associates	
Broekvole Associates	
Surregio	
Pushesidand	
Cambridge Systems	
COI Bystems	
ChicagoSoft	
Chipcom	
Cincom Systems	
Сотвее	
Company Computer Corp. of America	
CW 1000th Issue	
CW 1000th Issue	
CW Denmark	
CM Recomment Teathmental	
CW Recruitment Testimonial. CW ROP Testimonial	46 128 122 1
Data General Data Language Corp.	
Datapoint	
Datascuth Computer	
Determent D&G Computing Serices	THE TAX I WAS A PROPERTY OF THE PARTY OF THE
D&G Computing Serices	120-1
Definitive Systems	
Develops	
Dicents	The second secon
Duquesne Systems Inc	
IDP China	
Empect Software	
Federal Communications	
Pinancial Technology	
term Monamenter	
Seviet Packard	
Sported Information Systems	
major manage of the same	

-	lex				
Infrastructura	te Processing				124
Interestion De	ta Processing				
	•				
Jacore	mind.				
Joseph & Cop	pn Associates	-			
Rouger Inc					
Local Data					******
	promote Corp				
MacWorld Do	Design		-		
Mocaminos a	- Design	-	-		
Marie					
MSA					-
NEC Informat	en Systems	THE RESERVE TO THE RE		42-4	3.112
MEC Decirent					2
Okidata					106
Oracle Corp					······1
Persona					

Recel Yards	Development				114
Copie System	s Development				
Desirate No.	functings				
Retrievel Tech	melody		-		******
SAS Inettade.					24-2
Solve Instruct					-
Sefted		-			
SOTTUBE AG.					
-					-
Services Inc.					
The System C					-
lecterate In	100 m				
laterities		,			-

ranks lean. For example, automate order processing can save several jobs at each location.

yous at each location.

"Ocean Spray is starting to come
up against the big boys now. Instea
of being a sleepy little regional com
pany, we are beginning to run into
companies that, through acquisitions, have the power of companies
like Corn. Cols behind the reference.

tino aays.

A cooperative owned by 800 cran-berry and other fruit growers, Ocean Spray moved into the Fortune 500 list of industrials two years ago, its expected 1985 revenue of 4630 mil-lion is more than double its 1981 tales and keeps the company on a track toward \$1 billion in revenue by

1990. Modestino says Ocean Spray's dra-matic growth began in the iast 1970 or making growth began in the iast 1970 of of about 1951 in terms of both reve-nue and computer use for the next fer years. The company's revenue growth sisms from a reformulation fer years. The company's revenue growth sisms from a reformulation to make it taster as well as decisions to expand Ocean Spray's product line to include hiends of cramberry and other juices and non-cramberry prod-ted his grape-fruit Juice and guava-vel his grape-fruit Juice and guava-

The firm has also experimented with new marketing approaches, such as the introduction of single-serving, flexible cartons with attached straws

ning model

The planning model was used in Ocean Spray's selection of the Model 150 over other systems from the IBM 3080 and 3090 families and shows that the Model 150 should meet the body of the Model 150 should meet the the Model 150 should meet the seads until

3000 and 3000 families and shows 1000 and 3000 and 3000 families and shows 1000 and 1000 and

which processors can handle his pre-centing load and with what point each system will be overfooded. The control of the control of the control of capacity one and that the foliod 150 will be adequate until late 1988. Modestina those considered fasters each as the coit of and uppress pos-mer may be considered fasters of the coit which are obtained to the coit of the coit of

rs the company was taking, so a

Ocean Spray MIS second B1800 was added. It was fast or but still too slow," recalls flodestino, who joined Ocean Spray or smalleger of financial systems developed the second stress of the second str nt in 1981.

opment in 1981.

At the time, Ocean Spray's remote locations and processing plants — of which there now are six — were begging for processing power, according to Modestino. The company

replaced the Burroughs systems with an IBM 4331 Model Group 2 in its e Inc VS 80 mini

ed to IEM for Re

The shift to the IBM equipment was made because Ocean Spray wanted the flexibility to use as many third-party software pockages as possible, and the volume of software written for IBM operating systems allowed that better than the amount. of software written for Burroughs

systems. The minicomputers were used to process orders during the day and to process orders during the day and to batch-upload those orders to the 4331 at night. In addition, the remote minis we used for local applications, such as dealing with local government regulations, at process-overnment regulations, at process-cut of the control of the contr

A Wang VS 90 and VS 100 were installed to support the upinosis and headquarters office automation. The MIS department went through a heetic period, using as many as 10 consultants at a time for projects such as developing links between the VS 90s and the host. We have the VS 90s and the host. We have the votable period of the votable period period of the votable period of

suld not disclose exact figures,

however.

Just changing hardware vendors
was complicated. "To a lot of people
who had been here for a number of
years working with the Burroughs,
the move to IBM was traumatic. The the move to loss was transmute. The Burroughs equipment was more user friendly, or at least it was easier to work with in a technical sense," Mo-destino adds. The move to a 4331 was followed by upgrades through the 4341 Jamily before the 3063 was installed in 1984.

stino says that while d tralization was the popular philoso-phy industrywide in 1981, and the phy industrywide in 1961, and the minicomputer-based solution worked for a time, Ocean Spray outgrew the decentralized system. He notes that it became difficult to keep a common version of an application on multiple

Modestino adds that there are als difficulties in tracking an order

when it could be on any one of the systems: the remote VS, a headqu ters VS or the host. Also, maintenance can be difficult because some of the remote plants are more than 40 miles from the nearest large city

40 miles from the nearsac large city.
"Two years ago, we mad as decision that although discentralization control and a security of the securit

cossed at headquarters and prints out within minutes at the remote plant that will fill the order.

lant that will fill the order.
The VS 80s will be removed a yerom now, although the Wang sysms at headquarters will continue
o support office automation white
unning Wang Office. Personal comuters have already taken over sor
the manufacture. of the remote minis' res IBM System/36s have b to act as dumb \$270 con to eventually handle ele

at the remote locations.
Asked whether it is unusual for a
company to reverse itself and return
to a mainframe-intensive environment, Modestino says, "I'm not sure
we are bucking a trend. As you get
down into maincomputers, you have
to ask yourself what you are doing to ask yourself what you are doing with the minicomputer that you can't do with a PC. You also woo't hear too many people disagree that it is better to have all of your data stored in one place. What we said was, 'Let's store it once, ac in one place.

to sales representatives, tell the sales force such things as whether it is meeting sales projections, how sales relate to costs and what percentage

voiced. Ocean Spray's principal decision Support tool is Integrated Planning Inc. 'a Strategem, which sales and igstics analysts access using IBM \$270-type terminals. Modestino sa Ocean Spray chose Strategem be-cause it allows analysts to use as many dimensions as they want, ras ""han' the two or three in persons ""han' the two or three in persons

er than the two or three in personal computer-based decision support

A typical use would be to examine the respective costs of shipping products from alternative sites when a single plant is low on inventory. Modestino adds that s key feature of Strategem, which he says can be hard to learn, is its ability to support at least limited Cobol input.

least limited Cobol input.

"Strategem really was a gamble, cause we in MIS have a general adency to overtook learning curves. You can never be sure that the cusers will take the time need

ed to learn how to use a product. It didn't proess as fast as 1 aght, but two years

later, we still are where we wanted to be," Modestino says, noting that Strategem is one reason Ocean Spray cut out the need for service bureaus performing statistical market re-

Other third-party packages running on the IBM equipment include several McCor-mack & Dodge Corp. ac-

counting systems, Comserve Corp.'s facturing software and

AT A GLANCE

Amapa manufacturing soft ware and Datacom DB.
To illustrate how fast Ocean Spray's MiSoperation has grown, Modestine notes that his staff is doing a major modification to Amaps to

make it better support the food processing industry, rather than the dis crete manufacturing for which most anufacturing software is designed. Ocean Spray bought all six Amaps modules and is using most of them for tasks such as purchasing, inven-tory control and material require-

meots planning.

The modification effort is focus
on the shop floor module. Unlike manufacturing operations that in-volve dozens of steps, Ocean Spray's processing is basically a two-or

three-step operation as cranberries are pressed and preserved. Modestino notes that most shop floor management systems are de signed to reduce paper, such as work

orders, which is not a major concern in processing. He says the Amaps modification is a larger project than the entire 1961 conversion that re-quired so much outside assistance. He adds that this project is being ne in-house.

But that is not Modestino's big project today. Now he is planning for a corporate relocation. Two years from now, Ocean Spray will be ienving its Plymouth headquarters for a larger building in nearby Middle-boro, Mass. The new building will not have the harbor view, but it will rlook acre after acre of raw inntory - cranberry bogs.



field loca tion center and is une-based decision

personnel. In addition, the firm has installed and is modifying a manufacturing software system and is emphasizing electronic ordering, invoicing and bill payment. Within five years, electronic orders are expected to jump from 5% of all Ocean Spray orders to between 70% and 80%. The fleens Serve in formation com-The Ocean Spray information of ter, established in June 1985, pro-

vides training to users and tests nev technology, particularly microcom-puter products. Ocean Spray has about 110 personal computers in as approximately 150 er ing IBM 3270 or other to rly 150 employ

Orean Spray also provides a heip deak, managed by its computer services department, and supports user queries from the field — queries that may come from aslessmen using personal computers throughout the night and early morning.

Porty salessmen in offices across

Forty salesmen in ornoes across the U.S. use personal computers to access the mainframe, running Ap-plied Data Research, Inc.'s Datacon DB data base system, and to pull down reports about their specific

Asher Technologies to be sold

y James A. Martin NORCROSS, Ga. — In a move to in-rease the stock market value of the impany, Intelligent Systems Corp. expected to spin off its Asher Tech-lender. In consequent systems

Asher Technologies has operated as a stand-alone company since it was acquired in Pebruary 1985 by littligues Systems.

Several analysis agreed the Frinceton Grappic Dystems, also a stand-sione listelligent Systems, company based in Princeton, IV.J., would make a public offering sometime in the early fall. Notice remortally on the Princeton Company has been been supported to the property of the property of the property of the Princeton Company of the Princeton Compan

Datapoint reports fiscal-year loss but improves from last year's deficit

SAN ANTONIO — Datapoint Gorp. last week reported fourth-quarter set earnings of 2821,000, or 1 cent per abare, compared with a deficit of \$8. million power in the like product last year. Taking into consideration the spin-off of its intelogic free last, year. Taking into consideration the spin-off of its intelogic free, lee, service unit, Datapoint's fourth-justed to the product of the intelogic fourth-justed power last per use \$15.2 million on an unaudited basis, according to the first power last product to the contract last part per use \$15.0 million on an unaudited basis, according to the first per use \$1.0 million on an unaudited basis, according to the first per use \$1.0 million on an unaudited basis, according to the first per use \$1.0 million on an unaudited basis, according to the per united to the per

from the same period last year. Excluding blelogic Trace, last year's medical period of the period of the period of the last year, Datapoint reported an et not 648.5 million, sejanificated inspectoment from the 448.2 million of the count of the last year, Datapoint record of the last year of the period of the Revenue for the quarter ended July 26 was \$89 million, off 20%

Alpha Micro dispute ends

Through the merger, both compa-nies should be able to reduce over-head in such areas as research and development and sales expenses, Na-varro continued. Alpha Micro's 450 value-added reselbers will help Tel-video broaden its sales presence, be

added.

In the current quarter, ending in November, Alpha Micro should break even, with Televideo losing about \$600,000, Navarro predicted. In its last fiscal year, which ended Peb. 23, Alpha Micro lost \$3.5 million on revenue of \$4.8 g million.

chase up to 49.9% of Alpha Micro chase up to 49.9% of Alpha Micro shares at 86 per share. Point 4 Data also proposed to later buy the remaining shares with subor-dinated three-year notes represen-ing \$5.50 per share and 8% interest

ong exclusive reserve one on ancere-calling his company's offer "rise and appropriate," Fout of Data Presi-cient William Engly and his company would look for other neeper and ac-The peory fight had been initiated by Richard Wilcox and Subert Histo-cock, who together own mee than 23% of Apina Micro's stock. Wilcox meets as colaires and who exhibiting the appropriate of the president of the p

IBM staff trims one step to health

use of supplemental employees and reduced discretionary expenses, the voluntary retruence plan should help IBBI reduce costs at these when it is fading the prospect of a second consecutive year of lower establish. Were if it is employment reduction to the property of the property of the property of the property of the manufacture of the property of the manufacture of the property of the manufacture of the property of the property of the property of the manufacture of the property of the manufacture of the property of the property of the property of the manufacture of the property of

Tracking inside trade trends insufficient without analysis



within a company nearcutive suite.
"Insider trading" is the term generally associated with the buying and selling of company's stock by that company's officers, directors and shareholders with at least 10%

equity.
Insider trading should not be confused with trading securities on material, nonpublic or "inside" information, which is illegal.

The Securities and Exchange Commission (SEC) requires insiders to report any change in their direct or indirect behalings of their compa-ny's outstanding stock no later than the 10th day of the month following the month in which they bought or

To protect the interests of outs investors, the SEC's short swing profits rule stipulates that inside cannot sell stock within six month

Cohen does not expect IBM to take resource that would further out its work from: Within the conflicts of full-employment strategy, they're coher strategy, they're Coher satisfact and they're coher satisfact and they cohered satisfact and they coheren satisfact and they cohered satisfact and they co

ative ratings refer to purchases and sales, respectively.

There are thousands of reasons for an insider to sell, but only some continuous sell, but sell, but sell, but sell, but sell, but sell, sell, but sell, sell,

al average.

In assessing insider sales, one must separate the trivial trade from the investment decision. Selling stock to buy a house or pay off a debt constitutes trivial selling, according to Buck. How does an inves-

cording to Buck. How does an inves-tor gauge the significance of insider sales activity?

Bock suggests checking the per-centage of holdings the insider sells, whether the insider sells when the stock market is rising or buys in a falling market, whether all of the insiders are reversing themselves by selling soon after buying. "These factors pinpoint insider investment decisions in any particular stock," Buck says.

According to Buck, technology companies always have insider sale activity. Therefore, one must know the company and what the average insider activity is for the company. For example, Buck reported a higher than usual level of insider selling at IBM prior to its disappointing second-quarter earnings disclosure.

pointing second-quarter earnings disclosure.

But insider selling at Digital Equipment Corp., which received a rating of negative 141 two weeks ago when the Vickers Index average was negative 8.66, reflects insiders taking profits rather than taking

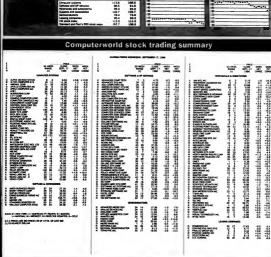
Despite his belief in the correla-tion of insider investment decisions and stock price movements, Buck-insiats than monitoring inside trad-ing should be used by the invest-ment coinsmitty as a fing for fur-ther study, not as the sole reason for investing in a specific stock.

plan, for starters.

"BM could do what other componies have done with vacation time,"
not have done with vacation time,"
say the composition of the composition of







COMPUTER INDUSTRY

Tarkenton Softare teams up th Knowgeware to omate softment/118

Paradyne is under investigation by the U.S. Custom Service for possible noncompilance with overseas shipping regulations/126

CDC prepares to sell its Commercial Credit subsidlary/128

INSTANT

"No one has been spared from the effects of consolidation in the computer industry. Investors, analysts, industry executives and all paid their dues in a very strange

Alpha Micro dispute ends

Televideo's \$25.6M offer accepted, Point 4 concedes

By Bords Bright
SUNNYVALE, Calif. — Televideo Systums, Inc. last week agreed to acquire motums, and the tweek agreed to acquire mosystems, line. for approximately \$55.6
million in cash and stock. The agreement
comes on the beels of a tender offer by
Pinix 4 Data Gorp, and a penry bettle
tausched by two Julpan Micro offension of
the state of the state of the state of the state
state of the state of the state of the state of the state
state of the state of the state of the state of the state
state of the state of th

pany [CW, Sept. 8].
Under the proposed acquisition, Televideo will buy all outstanding Alpha Micro shares for 48 each, with half of those shares being paid for in cash and half in Televideo stock.

shares being paid for in cash and half in Televideo stock. A vote by Alpha Micro's shareholders is expected to take place either at the firm's Dec. 9 shareholder meeting or by pruxy, a company spokesman said. If the acquisi-tion is approved, Alpha Micro will become IBM staff trimming

iust one step toward

health, analysts say

By Alan Alper NEW YORK — IBM's recently inv voluntary retirement program is a small and somewhat belated step in the bloated

corporation's attempt to significantly trim expenses during the two-year-long con-puter industry slump, analysts said last

week. The plan, which allows employees as of Dec. 15 of this year to retire at 55 of five years earlier than before — does preserve IBM's much-ballyhiood full-employment tradition. "IBM is like an insurance policy," says Louis Giglio, a market research analyst at Bear, Shearna 6.0. in New York. "You sign on, and you've in for life." Combined with the limited lairing pro-

a wholly owned subsidiary of Televidous was competers. Both competers may be competer to the c

nalo for its multimer systems also unsance manufacturing capacity. Despite suffering a loss of \$700,000 on their-quarter sales of \$25 million. Televi-dees is "faceded with cath." said Samuel Navarras an can live York. With times petting even tougher for vertical market companies like Alpha Micro, Pievideo's capital should be a big help, Navarro said. See MPMA opp 144.



Affiliation may beget contempt

here were many an "I told you so" heard around the brokerag industry recently when AT&T industry recently when ATAT and Quotron Systems, inc. terminated their 15-month-old joint marketing and product development arrangement. Whispered within certain sectors of Wall Street is the rumor that the break-

Wall Street is the rumor that the break-up is the initial more in what will be a massive backlash against Quotron for-lowing its acquisition by Citicoro for-lowing its acquisition by Citicoro for-sion of the Company of the Company State of the Company of the Company State of the International Company and Company of the Company of

like it much.

On one hand, it seems that the rup-tured relationship does not bode well for Quotrun. Afta Preconsidered its participation in the venture after the first prospect. Shearson Lehman Broth-ers, inc. said it was wary of purchasing financial information services from a subsidiary of archival Citicorp.

Shearson Form ATAT's generative.

subsidiary of archival Citicorp.
Sheareon, from AT&T perspective, gut a damper on the venture's property by withort wing like commitment. He was a subsidiary of the commitment of the commitmen

Alper is Computerworld's mid-At-

lantic bureau correspondent.

NCR cautiously optimistic about prospects in face of slump computer industry slowdown," said Ulric Well, a Washington D.C.-based

Slow domestic mart, tax law could hinder results

By Alan Alper NEW YORK — Citing encouraging order rate trends following a strong first-half performance, NCR Corp. chairman Charles Exley last week the remains cautiously optimistic at the firm's prospects despite lingering effects of the prolonged

ting for the first time in thre speaking for the first time in three ears to members of the New York ociety of Security Analysts, Exicy tiled the current slowdown "a pass-of phenomenon," but he emphasized

Existy acknowledged that his earlier projection of a mediocre first half be-ing followed by a signifi-cant improvement in mar-ket conditions in the second half did not materi-

"At the time, I predicted that 1996 would be another year of progress for
NCR in revenue and earnNCR serves and earnexpect this, but I must say now that "R shows you that good m

m-risk conditions make it can prevail and withstand

"My custion comes from what I look a lot tougher now than it did in see happening in the U.S.," he sald. January."
"Sales of semiconductors to the computer industry of supposed formancially barometers, Estiey contended that denies the July/August time period." Pointing to a variety of financial aromaters, Exley contended that despite the industry slump, NCR continues to outperform the majority of its

alyst. Exley said he continues to worry Exley said he continues to worry oout reduced domestic gross mar-ns and the impact of the proposed deral tax code overhaul that would crease corporate income tax and iminate some research and develop-

For instance, in the first half of the year, NCR's revenue rose by al-most 14% to \$2.12 billion, Exley noted. Revenue in-creases at 11 of the firm's Analysts were upbeat concerning NCR's recent showing and its prospects.

ment benefits.
Exky also acknowledged for the
first time that NCR had considered
acquiring Sperry Corp. prior to Burroughs Corp. 's proposed takeover.
"We were in discussions with
Sperry when Burroughs made its
of the picture," Exky recalled. "It
was clear that Sperry was worth
more to Burroughs that to u."

IF YOU CAN'T CHOOSE BETWEEN IRMA AND IBM, DON'T.



Choose the Businessland 3270 Adapter, instead.
So you can use all the software you've been running with your IRMA' card. And all the software coming from IBM' for its 3278/9 card.

Without having to choose between the two.
The Businessland 3270 Adapter lets IBM PCs,
COMPAQ's and compatibles communicate with IBM
mainframes.

Just like the other 3270 emulation boards do. But it runs all the competitive software.

Just like the other boards don't.

Plus it provides multiple host session, host printer support and windows and graphics.

And it's backed by Businessland's trained 3270 specialists, who provide service, support and introductory customer training nationwide.

So call (800) 323-1000 for further information. And see what a good choice our 3270 Adapter is.

BUSINESSIAND

Where business people are going to buy computers.



MSA FINANCIAL SOFTWARE TAKES EVERYTHING EVER LEARNED HERE ABOUT BALANCING BUDGETS AND DOES THE EXACT OPPOSITE.

If they started using our financial software in Washington, they just might be able to do what they haven't done for the past 25 years. Balance the budget.

That's because financial software from Management Science America, Inc. would give them the facts about their figures. Facts detailed, comprehensive and current enough to bring even a federal budget under control. But our software could work just as well for budgets under a trillion dollars and with-

out a 900 billion dollar defict. How? By offering the complete financial solution for business. In fact, thanks to General Ledge, Fixed Assets, Accounts Reyeble, and Accounts Receivable (to name just a few), we make: Tempe & CANE

managing finance something you can manage. All in all, that's why over five thousand businesses, from manufacturing and banking to health care and insurance are already using our financial softwere.

For more information, call Robert Carpenter at 404-239-2000. He'll budget as much of his time to talk to you as you need.

LSA SUF I WAN